PREFACE

In 1993, the South Carolina Department of Health and Environmental Control (SCDHEC) published the first in a series of five watershed management documents. The fourth in that series, Watershed Water Quality Management Strategy: Pee Dee Basin communicated SCDHEC's innovative watershed approach, summarizing water programs and water quality in the basins. The approach continues to evolve and improve.

The watershed documents facilitate broader participation in the water quality management process. Through these publications, SCDHEC shares water quality information with internal and external partners, providing a common foundation for water quality improvement efforts at the local watershed or large-scale, often interstate, river basin level.

Water quality data from the Pee Dee River Basin was collected and assessed at the start of this second five-year watershed management cycle. The assessment incorporates data from many more sites than were included in the first round. This updated atlas provides summary information on a watershed basis, as well as geographical presentations of all permitted watershed activities. A waterbody index and a facility index allow the reader to locate information on specific waters and facilities of interest.

A brief summary of the water quality assessments included in the body of this document is provided following the Table of Contents. This summary lists all waters within the Pee Dee River Basin that fully support recreational and aquatic life uses, followed by those waters not supporting uses. In addition, the summaries list changes in use support status; those that have improved or degraded over the last five years since the original strategy was written. More comprehensive information can be found in the individual watershed sections. The information provided is accurate to the best of our knowledge at the time of writing and will be updated in five years.

As SCDHEC continues basinwide and statewide water quality protection and improvement efforts, we are counting on the support and assistance of all stakeholders in the Pee Dee River Basin to participate in bringing about water quality improvements. We look forward to working with you.

If you have questions or comments regarding this document, or if you are seeking further information on the water quality in the Pee Dee River Basin, please contact:

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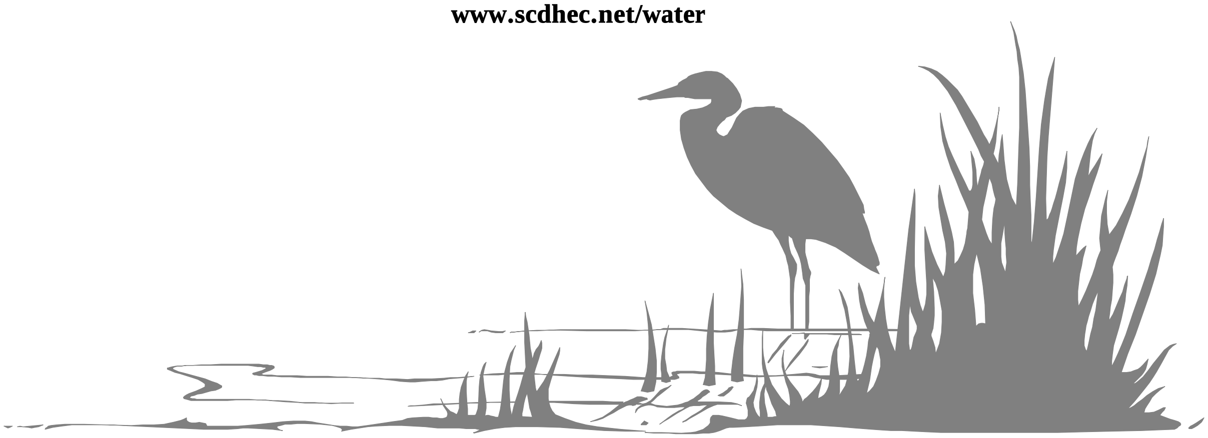

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Pee Dee River Basin

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TERMS USED IN TABLES

AQUATIC LIFE USE SUPPORT (AL) - The degree to which aquatic life is protected is assessed by comparing important water quality characteristics and the concentrations of potentially toxic pollutants with standards. Aquatic life use support is based on the percentage of standards excursions at a sampling site.
For **dissolved oxygen** and **pH**:

If the percentage of standard excursions is 10 percent or less, then uses are ***fully supported***.

If the percentage of standard excursions is between 11-25 percent, then uses are ***partially supported***.

If the percentage of standard excursions is greater than 25 percent, uses are ***not supported*** (see p.12 for further information).

For **toxins** (heavy metals, priority pollutants, chlorine, ammonia):

If the acute aquatic life standard for any individual toxicant is not exceeded, uses are ***fully supported***.

If the acute aquatic life standard is exceeded more than once, but is less than or equal to 10 percent of the samples, uses are ***partially supported***.

If the acute aquatic life standard is exceeded in more than 10 percent of the samples, based on at least ten samples, aquatic life uses are ***not supported*** (see p.12 for further information).

RECREATIONAL USE SUPPORT (REC) - The degree to which the swimmable goal of the Clean Water Act is attained (recreational use support) is based on the frequency of fecal coliform bacteria excursions, defined as greater than 400/100 ml for all surface water classes.

If 10 percent or less of the samples are greater than 400/100 ml, then recreational uses are said to be ***fully supported***.

If the percentage of standards excursions is between 11-25 percent, then recreational uses are said to be ***partially supported***.

If the percentage of standards excursions is greater than 25 percent, then recreational uses are said to be ***nonsupported*** (see p.13 for further information).

Excursion - The term excursion is used to describe a measurement that does not comply with the appropriate water quality standard.

Fully Supported Sites in the Pee Dee River Basin

***** = Station not evaluated for Recreational Support; ****** = Not a Predictor of Future Impairment

Watershed	Waterbody Name	Sta. #	Improving Trends	Other Trends**
03040202-010	Lynches River	(PD-113)	Decreasing BOD5, Total Nitrogen, Fecal Coliform	
03040202-030	Lynches River	PD-113	Decreasing BOD5, Total Nitrogen, Fecal Coliform	
03040202-050	Lynches River	PD-001		
03040202-060	Little Fork Creek	PD-647*		
03040202-070	Little Lynches River	PD-632*		
		PD-109		Increasing Turbidity
03040202-080	Beaver Dam Creek	PD-678*		
03040202-090	Lynches River	PD-071	Decreasing Fecal Coliform	Increasing Turbidity, pH
		PD-364	Decreasing BOD5 and Total Nitrogen	
03040202-100	Sparrow Swamp	PD-072	Decreasing BOD5	
		PD-332	Decreasing BOD5, Total Nitrogen	Increasing Turbidity, pH
03040202-110	Lake Swamp	PD-345		
03040202-120	Lynches River	PD-041	Decreasing BOD5, Total Nitrogen	Decreasing Dissolved Oxygen, pH; Increasing Turbidity, Fecal Coliform
		PD-281	Decreasing BOD5, Total Nitrogen	Decreasing Dissolved Oxygen; Increasing Turbidity
03040202-150	Lake Swamp	PD-085	Increasing Dissolved Oxygen; Decreasing BOD5, Turbidity	
03040202-170	Lake Swamp	PD-087	Decreasing BOD5	Increasing Turbidity, pH
03040205-020	Atkins Drainage Canal Tributary	PD-354		
03040205-050	Scape Ore Swamp	PD-201		

Fully Supported Sites in the Pee Dee River Basin

***** = Station not evaluated for Recreational Support; ****** = Not a Predictor of Future Impairment

Watershed	Waterbody Name	Sta. #	Improving Trends	Other Trends**
03040205-060	Rocky Bluff Swamp	PD-357		
03040205-090	Pocotaligo River	PD-043	Decreasing BOD5, Total Nitrogen, Fecal Coliform	Increasing Turbidity, pH
03040205-100	Black River	PD-227	Decreasing BOD5, Total Nitrogen, Fecal Coliform	Increasing pH
03040205-130	Kingstree Swamp Canal	PD-358		
03040205-140	Black River	PD-045		Increasing Turbidity, pH
		(PD-359)		
03040205-150	Black River	PD-359		
03040205-170	Black Mingo Creek	PD-361	Decreasing BOD5	
03040205-180	Black River	PD-325	Decreasing BOD5, Total Nitrogen	
03040201-040	Whites Creek	PD-191		
03040201-050	Pee Dee River	PD-015		
03040201-060	North Prong Creek	PD-677*		
	Juniper Creek	PD-340		
03040201-070	Crooked Creek	PD-014	Decreasing BOD5, Fecal Coliform	Increasing pH
		PD-063		
03040201-080	Cedar Creek	PD-675*		
		PD-151		
03040201-090	Hagins Prong	PD-336	Decreasing Turbidity, Fecal Coliform	Increasing pH
	Three Creeks	PD-341		

Fully Supported Sites in the Pee Dee River Basin

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Watershed	Waterbody Name	Sta. #	Improving Trends	Other Trends**
03040201-100	Black Creek	PD-674*		
		PD-004	Increasing Dissolved Oxygen; Decreasing BOD5, Total Phosphorus	Increasing pH
		PD-670*		
		PD-251		
	Little Black Creek	PD-676*		
	Skipper Creek	PD-613*		
	Lake Robinson	PD-327	Decreasing BOD5, Turbidity	Decreasing Dissolved Oxygen; Increasing pH, Fecal Coliform
03040201-110	Black Creek	PD-159		Increasing Turbidity, pH, Fecal Coliform
		PD-025	Decreasing BOD5, Total Phosphorus, Total Nitrogen, Turbidity	Increasing pH, Fecal Coliform
		PD-078		
	Prestwood Lake	PD-268		Increasing Turbidity, pH, Fecal Coliform
		PD-081		Increasing Turbidity, pH, Fecal Coliform
	Snake Branch	PD-137		
03040201-130	Jeffries Creek	PD-255	Increasing Dissolved Oxygen	
		PD-256		
		PD-035		Increasing Turbidity; Decreasing pH
		PD-231	Decreasing BOD5, Total Phosphorus	Increasing Turbidity
	Willow Creek	PD-167		
03040201-160	Pee Dee River	PD-060		

Fully Supported Sites in the Pee Dee River Basin

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Watershed	Waterbody Name	Sta. #	Improving Trends	Other Trends**
03040201-170	Pee Dee River	MD-080	Decreasing BOD5, Total Suspended Solids, Fecal Coliform	Decreasing Dissolved Oxygen
03040203-180	Lumber River	PD-038	Decreasing BOD5	Decreasing Dissolved Oxygen; Increasing Turbidity, pH
03040203-210	Ashpole Swamp	PD-347		
03040204-010	Panther Creek	PD-306		Increasing Turbidity, pH, Fecal Coliform
		PD-016	Increasing Dissolved Oxygen; Decreasing BOD5	
	McLaurins Mill Pond	PD-017A	Increasing Dissolved Oxygen; Decreasing Fecal Coliform	Increasing pH
	Gum Swamp	PD-062	Increasing Dissolved Oxygen	
	Little Pee Dee River	PD-365		
03040204-030	Little Pee Dee River	PD-069	Decreasing BOD5, Total Nitrogen	Increasing Turbidity, pH, Fecal Coliform
		PD-029E	Increasing Dissolved Oxygen	Increasing Turbidity, pH
		PD-055	Decreasing BOD5, Total Phosphorus	Increasing Turbidity, pH
		PD-030A	Decreasing BOD5	Increasing Turbidity
		PD-348		
03040204-050	Buck Swamp	PD-031	Decreasing BOD5, Turbidity, Fecal Coliform	
		PD-349		
03040204-060	Little Pee Dee River	PD-052	Decreasing Total Nitrogen and Total Phosphorus, Fecal Coliform	Increasing pH
03040204-070	Little Pee Dee River	PD-042	Decreasing Total Nitrogen and Total Phosphorus	Increasing Turbidity
		PD-350		
03040204-080	Lake Swamp	PD-176		Increasing Dissolved Oxygen

Fully Supported Sites in the Pee Dee River Basin

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Watershed	Waterbody Name	Sta. #	Improving Trends	Other Trends**
03040204-090	Chinners Swamp	PD-177	Decreasing BOD5	
03040206-100	Buck Creek	PD-362		
03040206-110	Simpson Creek	PD-363		
03040206-140	Waccamaw River	MD-110	Decreasing BOD5	
03040206-150	Waccamaw River	MD-137	Decreasing Turbidity	Decreasing Dissolved Oxygen
		MD-138		Decreasing Dissolved Oxygen
		(MD-080)	Decreasing BOD5, Total Suspended Solids, Fecal Coliform	Decreasing Dissolved Oxygen
03040207-030	Sampit River	MD-077	Decreasing BOD5, Total Nitrogen	Increasing Turbidity; Decreasing pH
		MD-073	Decreasing BOD5, Total Nitrogen	Decreasing Dissolved Oxygen, pH
		MD-074		
03040207-040	Winyah Bay	(MD-080)	Decreasing BOD5, Total Suspended Solids, Fecal Coliform	Decreasing Dissolved Oxygen

Impaired Sites in the Pee Dee River Basin

REC = Recreational; AL = Aquatic Life; P = Partially Supported Standards; N = Nonsupported Standards; * = Not a Predictor of Future Impairment

Watershed	Waterbody Name	Sta. #	Use	Status	Cause	Undesirable Trends	Other Trends*
03040202-020	Hills Creek	PD-672	AL	P	Macroinvertebrates		
		PD-333	REC	N	Fecal Coliform		
03040202-030	North Branch Wildcat Creek	PD-179	REC	N	Fecal Coliform		Decreasing pH
		PD-679	AL	P	Macroinvertebrates		
	South Branch Wildcat Creek	PD-180	REC	P	Fecal Coliform		Increasing Turbidity
03040202-040	Flat Creek	PD-182	AL	P	Macroinvertebrates		
		PD-342	REC	P	Fecal Coliform		
03040202-050	Lynches River	PD-066	AL	N	Copper		Increasing Total Phosphorus
			REC	P	Fecal Coliform		
		PD-009	REC	P	Fecal Coliform		
		(PD-080)	AL	N	Zinc		
03040202-060	Little Fork Creek	PD-215	AL	N	Copper		
	Fork Creek	PD-067	REC	N	Fecal Coliform		Increasing BOD5, Turbidity
		PD-068	AL	N	Copper		Increasing Turbidity
			REC	N	Fecal Coliform		
03040202-070	Little Lynches Creek	PD-640	AL	P	Macroinvertebrates		
	Horton Creek	PD-335	REC	N	Fecal Coliform		
	Todds Branch	PD-005	REC	N	Fecal Coliform		
03040202-070	Little Lynches River	PD-006	REC	P	Fecal Coliform		Increasing Turbidity
		(PD-343)	REC	P	Fecal Coliform		

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Watershed	Waterbody Name	Sta. #	Use	Status	Cause	Undesirable Trends	Other Trends*
03040202-070	Haile Gold Mine Creek	PD-334	AL	N	pH	Increasing pH	
	Lick Creek	PD-329	REC	N	Fecal Coliform		
	Hanging Rock Creek	PD-669	AL	P	Macroinvertebrates		
		PD-328	REC	P	Fecal Coliform		
03040202-080	Little Lynches River	PD-343	REC	P	Fecal Coliform		
		PD-344	REC	P	Fecal Coliform		
03040202-090	Lynches River	PD-080	AL	N	Zinc		
		PD-319	AL	N	Copper		Increasing Turbidity
		PD-093	AL	N	Copper		
	Cousar Branch	PD-112	AL	P	pH	Decreasing pH	
			REC	P	Fecal Coliform		
03040202-100	Newman Swamp	PD-229	AL	N	Dissolved Oxygen	Decreasing Dissolved Oxygen	Increasing Turbidity; Decreasing pH
03040202-130	Big Swamp	PD-168	AL	N	Dissolved Oxygen	Decreasing Dissolved Oxygen	
		PD-169	AL	N	Dissolved Oxygen	Increasing Fecal Coliform	Increasing pH
			REC	P	Fecal Coliform		
03040202-140	Camp Branch	PD-346	AL	N	Dissolved Oxygen		
03040202-150	Lake Swamp	PD-086A	AL	N	Dissolved Oxygen		Increasing Turbidity
			REC	P	Fecal Coliform		

Impaired Sites in the Pee Dee River Basin

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Watershed	Waterbody Name	Sta. #	Use	Status	Cause	Undesirable Trends	Other Trends*
03040202-160	Singleton Swamp	PD-314	REC	P	Fecal Coliform		
03040205-010	Black River	PD-353	REC	P	Fecal Coliform		
03040205-030	Scape Ore Swamp	PD-355	REC	P	Fecal Coliform		
03040205-040	Mechanicsville Swamp	PD-356	REC	P	Fecal Coliform		
03040205-070	Black River	PD-116	AL	P	Dissolved Oxygen	Decreasing Dissolved Oxygen	Increasing pH, Fecal Coliform
03040205-080	Nasty Branch	PD-239	AL	N	Dissolved Oxygen	Decreasing Dissolved Oxygen	
			REC	P	Fecal Coliform		
	Green Swamp	PD-039	AL	N	Dissolved Oxygen	Decreasing Dissolved Oxygen	Increasing Turbidity
	Pocotaligo River	PD-091	AL	N	Dissolved Oxygen	Decreasing Dissolved Oxygen	
	Turkey Creek	PD-098	REC	N	Fecal Coliform		
		PD-040	REC	N	Fecal Coliform		
03040205-090	Pocotaligo River	PD-202	AL	N	Dissolved Oxygen		Increasing Total Phosphorus, pH
		PD-115	AL	N	Dissolved Oxygen		Increasing pH
03040205-110	Pudding Swamp	PD-203	REC	P	Fecal Coliform		
03040205-140	Black River	PD-044	REC	P	Fecal Coliform	Increasing Fecal Coliform	
03040205-150	Black River	PD-170	AL	N	Zinc		Increasing Turbidity, pH, Fecal Coliform
03040205-170	Black Mingo Creek	PD-360	AL	N	Dissolved Oxygen		

Impaired Sites in the Pee Dee River Basin

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Watershed	Waterbody Name	Sta. #	Use	Status	Cause	Undesirable Trends	Other Trends*
03040201-030	Westfield Creek	PD-339	REC	P	Fecal Coliform		
		PD-641	AL	P	Macroinvertebrates		
03040201-050	Pee Dee River	PD-012	REC	P	Fecal Coliform	Increasing Fecal Coliform	
		PD-028	AL	N	Copper		Decreasing Dissolved Oxygen
03040201-060	Thompson Creek	PD-246	REC	N	Fecal Coliform		
		PD-673	AL	P	Macroinvertebrates		
		PD-247	AL	P	Dissolved Oxygen		Increasing Total Phosphorus
			REC	N	Fecal Coliform		
		PD-338	REC	P	Fecal Coliform		Increasing BOD5
	Deep Creek	PD-671	AL	P	Macroinvertebrates		
03040201-070	Crooked Creek	PD-107	REC	P	Fecal Coliform		Increasing pH
03040201-110	Black Creek	PD-021	AL	N	Copper	Increasing Fecal Coliform	Increasing Turbidity, pH
			REC	P	Fecal Coliform		
		PD-330	REC	P	Fecal Coliform	Increasing Fecal Coliform	
		PD-023	REC	P	Fecal Coliform		Increasing pH
		PD-027	AL	N	Copper, Zinc		Increasing pH
	Snake Branch	PD-258	REC	N	Fecal Coliform	Increasing Fecal Coliform	Decreasing pH

Impaired Sites in the Pee Dee River Basin

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Watershed	Waterbody Name	Sta. #	Use	Status	Cause	Undesirable Trends	Other Trends*
03040201-110	Tilefield Discharge to Swift Creek	PD-141	AL	N	Dissolved Oxygen	Decreasing Dissolved Oxygen; Increasing Fecal Coliform	Increasing BOD5, Turbidity, Total Nitrogen
			REC	N	Fecal Coliform		
	High Hill Creek	PD-103	REC	P	Fecal Coliform	Increasing Fecal Coliform	Increasing Turbidity
03040201-120	Pee Dee River	PD-337	AL	N	Chromium		Decreasing Dissolved Oxygen
03040201-130	Gulley Branch	PD-065	AL	N	Copper, Zinc		
			REC	N	Fecal Coliform		
	Middle Swamp	PD-230	REC	P	Fecal Coliform		
03040201-140	Pee Dee River	PD-076	AL	N	Copper		Decreasing Dissolved Oxygen; Increasing Total Phosphorus, Turbidity, Fecal Coliform
03040201-150	Smith Swamp	PD-320	REC	P	Fecal Coliform		
		PD-187	AL	N	Copper		Decreasing pH
			REC	P	Fecal Coliform		
	Catfish Creek	PD-097	REC	P	Fecal Coliform	Increasing Fecal Coliform	Increasing Total Phosphorus
03040201-170	Pee Dee River	PD-061	AL	N	Zinc		Decreasing Dissolved Oxygen
03040204-030	Maple Swamp	PD-030	AL	N	Dissolved Oxygen		Increasing Turbidity; Decreasing pH
			REC	P	Fecal Coliform		

Impaired Sites in the Pee Dee River Basin

REC = Recreational; AL = Aquatic Life; P = Partially Supported Standards; N = Nonsupported Standards; * = Not a Predictor of Future Impairment

Watershed	Waterbody Name	Sta. #	Use	Status	Cause	Undesirable Trends	Other Trends*
03040204-070	White Oak Creek	PD-037	AL	P	Dissolved Oxygen	Decreasing Dissolved Oxygen; Increasing Fecal Coliform	Increasing BOD5, Total Phosphorus, Turbidity; Decreasing pH
			REC	N	Fecal Coliform		
	Little Pee Dee River	PD-189	AL	N	Copper, Dissolved Oxygen	Decreasing Dissolved Oxygen	Increasing Turbidity, pH, Fecal Coliform
03040204-080	Cedar Creek	PD-351	REC	P	Fecal Coliform		
03040204-090	Chinners Swamp	PD-352	REC	P	Fecal Coliform		
03040206-090	Waccamaw River	PD-124	AL	N	Copper, Zinc Chromium		Decreasing Dissolved Oxygen; Increasing pH, Fecal Coliform
03040206-130	Crab Tree Swamp	MD-158	REC	N	Fecal Coliform		
	Kingston Lake Swamp	MD-107	REC	N	Fecal Coliform		Increasing pH
03040206-140	AIWW	MD-088	AL	N	Dissolved Oxygen		
			REC	N	Fecal Coliform		
		MD-089	AL	N	Dissolved Oxygen	Decreasing Dissolved Oxygen	
			REC	P	Fecal Coliform		
		MD-127	AL	N	Dissolved Oxygen		
03040206-140	Waccamaw River	MD-111	REC	P	Fecal Coliform		Increasing Turbidity, pH
		MD-136	AL	N	Dissolved Oxygen	Decreasing Dissolved Oxygen	
03040206-150	Waccamaw River & AIWW	MD-146	AL	N	Zinc, Dissolved Oxygen	Decreasing Dissolved Oxygen	Increasing pH

Impaired Sites in the Pee Dee River Basin

REC = Recreational; AL = Aquatic Life; P = Partially Supported Standards; N = Nonsupported Standards; * = Not a Predictor of Future Impairment

Watershed	Waterbody Name	Sta. #	Use	Status	Cause	Undesirable Trends	Other Trends*
03040207-020	Little River	MD-162	AL	N	Copper		Increasing pH
	AIWW	MD-125	AL	P	Dissolved Oxygen		
		MD-091	AL	N	Dissolved Oxygen	Decreasing Dissolved Oxygen	
			REC	N	Fecal Coliform		
		MD-085	AL	N	Dissolved Oxygen		
			REC	N	Fecal Coliform		
		MD-087	AL	N	Dissolved Oxygen, Copper		
			REC	N	Fecal Coliform		
03040207-030	Sampit River	MD-075	AL	P	Dissolved Oxygen	Decreasing Dissolved Oxygen	Increasing Turbidity
	Turkey Creek	MD- 076N	REC	P	Fecal Coliform	Increasing Fecal Coliform	Increasing BOD5, pH
	Whites Creek	MD-149	AL	N	Zinc		Increasing Turbidity

Changes in Use Support Status

Pee Dee River Basin Sites that Improved from 1994 to 1998

REC = Recreational; AL = Aquatic Life; F = Fully Supported Standards; P = Partially Supported Standards; N = Nonsupported Standards

Watershed	Waterbody Name	Sta. #	Use	Status		Cause	
				1994	1998	1994	1998
03040202-010	Lynches River	(PD-113)	AL	N	F	Copper	
			REC	P	F	Fecal Coliform	
03040202-030	Lynches River	PD-113	AL	N	F	Copper	
			REC	P	F	Fecal Coliform	
03040202-070	Little Lynches River	PD-109	REC	P	F	Fecal Coliform	
	Hanging Rock Creek	PD-328	REC	N	P	Fecal Coliform	Fecal Coliform
03040202-100	Newman Swamp	PD-229	REC	N	F	Fecal Coliform	
03040202-130	Big Swamp	PD-168	REC	P	F	Fecal Coliform	
03040205-050	Scape Ore Swamp	PD-201	REC	P	F	Fecal Coliform	
03040205-080	Green Swamp	PD-039	REC	P	F	Fecal Coliform	
03040205-090	Pocotaligo River	PD-043	AL	N	F	Zinc	
03040201-090	Hagins Prong	PD-336	REC	P	F	Fecal Coliform	
03040201-100	Skipper Creek	PD-613	AL	P	F	Macroinvertebrates	
03040201-110	Black Creek	PD-330	REC	N	P	Fecal Coliform	Fecal Coliform
	Prestwood Lake	PD-268	REC	N	F	Fecal Coliform	
		PD-081	REC	P	F	Fecal Coliform	
	Snake Branch	PD-258	AL	N	F	Dissolved Oxygen, pH	
		PD-137	AL	N	F	pH	
			REC	N	F	Fecal Coliform	
03040201-130	Willow Creek	PD-167	AL	N	F	Macroinvertebrates, pH, Dissolved Oxygen	
03040201-150	Smith Swamp	PD-320	REC	N	P	Fecal Coliform	Fecal Coliform
		PD-187	REC	N	P	Fecal Coliform	Fecal Coliform
03040201-170	Pee Dee River	MD-080	AL	N	F	Copper, Zinc	
03040204-010	Panther Creek	PD-016	REC	P	F	Fecal Coliform	

Pee Dee River Basin Sites that Improved from 1994 to 1998

REC = Recreational; AL = Aquatic Life; F = Fully Supported Standards; P = Partially Supported Standards; N = Nonsupported Standards

Watershed	Waterbody Name	Sta. #	Use	Status		Cause	
				1994	1998	1994	1998
03040204-030	Maple Swamp	PD-030	REC	N	P	Fecal Coliform	Fecal Coliform
03040204-050	Buck Swamp	PD-031	AL	N	F	Dissolved Oxygen	
			REC	P	F	Fecal Coliform	
03040204-060	Little Pee Dee River	PD-052	AL	N	F	Zinc, Copper	
03040206-130	Crab Tree Swamp	MD-158	AL	N	F	Dissolved Oxygen	
	Kingston Lake Swamp	MD-107	AL	N	F	Dissolved Oxygen	
03040206-140	Waccamaw River	MD-110	AL	P	F	Dissolved Oxygen	
		MD-111	AL	N	F	Dissolved Oxygen	
03040206-150	Waccamaw River	MD-137	AL	N	F	Dissolved Oxygen	
		MD-138	AL	N	F	Dissolved Oxygen	
03040207-020	Little River	MD-162	REC	N	F	Fecal Coliform	
	AIWW	MD-125	REC	N	F	Fecal Coliform	
03040207-030	Turkey Creek	MD-076N	REC	N	P	Fecal Coliform	Fecal Coliform
03040207-040	Winyah Bay	(MD-080)	AL	N	F	Copper, Zinc	

Changes in Use Support Status

Pee Dee River Basin Sites that Degraded from 1994 to 1998

REC = Recreational; AL = Aquatic Life; F = Fully Supported Standards; P = Partially Supported Standards; N = Nonsupported Standards

Watershed	Waterbody Name	Sta. #	Use	Status		Cause	
				1994	1998	1994	1998
03040202-020	Hills Creek	PD-333	REC	P	N	Fecal Coliform	Fecal Coliform
03040202-030	South Branch Wildcat Creek	PD-180	REC	F	P		Fecal Coliform
03040202-050	Lynches River	PD-066	AL	F	N		Copper
			REC	F	P		Fecal Coliform
03040202-060	Fork Creek	PD-067	REC	P	N	Fecal Coliform	Fecal Coliform
		PD-068	AL	P	N	Macroinvertebrates, Copper	Copper
	Little Fork Creek	PD-215	AL	F	N		Copper
03040202-070	Little Lynches Creek	PD-640	AL	F	P	Macroinvertebrates	
	Horton Creek	PD-335	REC	P	N	Fecal Coliform	Fecal Coliform
	Haile Gold Mine Creek	PD-334	AL	F	N		pH
03040202-090	Lynches River	PD-093	AL	F	N		Copper
	Cousar Branch	PD-112	AL	F	P		pH
03040202-100	Newman Swamp	PD-229	AL	F	N		Dissolved Oxygen
03040202-130	Big Swamp	PD-168	AL	F	N		Dissolved Oxygen
		PD-169	AL	F	N		Dissolved Oxygen
			REC	F	P		Fecal Coliform
03040202-140	Camp Branch	PD-346	AL	F	N		Dissolved Oxygen
03040202-150	Lake Swamp	PD-086A	AL	F	N		Dissolved Oxygen
03040202-160	Singleton Swamp	PD-314	REC	F	P		Fecal Coliform
03040205-010	Black River	PD-353	REC	F	P		Fecal Coliform
03040205-040	Mechanicsville Swamp	PD-356	REC	F	P		Fecal Coliform
03040205-070	Black River	PD-116	AL	F	P		Dissolved Oxygen
03040205-080	Green Swamp	PD-039	AL	F	N		Dissolved Oxygen
	Pocotaligo River	PD-091	AL	F	N		Dissolved Oxygen
03040205-090	Pocotaligo River	PD-202	AL	F	N		Dissolved Oxygen
		PD-115	AL	F	N		Dissolved Oxygen
03040205-110	Pudding Swamp	PD-203	REC	F	P		Fecal Coliform

Pee Dee River Basin Sites that Degraded from 1994 to 1998

REC = Recreational; AL = Aquatic Life; F = Fully Supported Standards; P = Partially Supported Standards; N = Nonsupported Standards

Watershed	Waterbody Name	Sta. #	Use	Status		Cause	
				1994	1998	1994	1998
03040205-140	Black River	PD-044	REC	F	P		Fecal Coliform
03040205-170	Black Mingo Creek	PD-360	AL	F	N		Dissolved Oxygen
03040201-030	Westfield Creek	PD-339	REC	F	P		Fecal Coliform
03040201-050	Pee Dee River	PD-012	REC	F	P		Fecal Coliform
		PD-028	AL	F	N		Copper
03040201-060	Thompson Creek	PD-246	REC	P	N	Fecal Coliform	Fecal Coliform
		PD-247	AL	F	P		Dissolved Oxygen
03040201-070	Crooked Creek	PD-107	REC	F	P		Fecal Coliform
03040201-110	Black Creek	PD-021	AL	F	N		Copper
		PD-027	AL	F	N		Copper, Zinc
	High Hill Creek	PD-103	REC	F	P		Fecal Coliform
03040201-170	Pee Dee River	PD-061	AL	F	N		Zinc
03040204-030	Maple Swamp	PD-030	AL	F	N		Dissolved Oxygen
03040204-070	White Oak Creek	PD-037	AL	F	P		Dissolved Oxygen
	Little Pee Dee River	PD-189	AL	F	N		Copper
03040204-080	Cedar Creek	PD-351	REC	F	P		Fecal Coliform
03040204-090	Chinners Swamp	PD-352	REC	F	P		Fecal Coliform
03040206-090	Waccamaw River	MD-124	AL	F	N		Copper, Chromium, Zinc
03040206-130	Crab Tree Swamp	MD-158	REC	P	N	Fecal Coliform	Fecal Coliform
	Kingston Lake Swamp	MD-107	REC	P	N	Fecal Coliform	Fecal Coliform
03040206-140	Waccamaw River	MD-111	REC	F	P		Fecal Coliform
		MD-136	AL	P	N	Dissolved Oxygen	Dissolved Oxygen
03040207-020	AIWW	MD-091	AL	P	N	Dissolved Oxygen	Dissolved Oxygen
03040207-030	Sampit River	MD-075	AL	F	P		Dissolved Oxygen
	Whites Creek	MD-149	AL	F	N		Zinc

Introduction

The South Carolina Department of Health and Environmental Control (SCDHEC or the Department) initiated its first watershed planning activities as a result of a U.S. Environmental Protection Agency (USEPA) grant in June of 1972. These activities were soon extended by §303(e), "Federal Water Pollution Control Act Amendments of 1972", U.S. Public Law 92-500. In 1975, the SCDHEC published basin planning reports for the four major basins in South Carolina. The next major planning activity resulted from §208 of the Federal Water Pollution Control Act, which required states to prepare planning documents on an areawide basis. Areawide plans were completed in the late 1970's for the five designated areas of the State and for the nondesignated remainder of the State. To date, these plans or their updated versions have served as information sources and guides for water quality management.

The Bureau of Water emphasizes watershed planning to better coordinate river basin planning and water quality management. Watershed-based management allows the Department to address Congressional and Legislative mandates in a coordinated manner and to better utilize current resources. The watershed approach also improves communication between the Department, the regulated community, and the public on existing and future water quality issues.

Purpose of the Watershed Water Quality Assessment

A watershed is a geographic area into which the surrounding waters, sediments, and dissolved materials drain, and whose boundaries extend along surrounding topographic ridges. Watershed-based water quality management recognizes the interdependence of water quality related activities associated with a drainage basin including: monitoring, problem identification and prioritization, water quality modeling, planning, permitting, and other activities. The Bureau of Water's Watershed Water Quality Management Program integrates these activities by watershed, resulting in watershed management plans that appropriately focus water quality protection efforts. While an important aspect of the program is water quality problem identification and solution, the emphasis is on problem prevention.

The Department has divided the State into five regions (areas consisting of one or more river basins), along hydrologic lines, which contain approximately the same number of NPDES permitted dischargers. A Watershed Water Quality Assessment (WWQA) will be created for each river basin within the five regions and will be updated on a five-year rotational basis. This will allow for effective allocation and coordination of water quality activities and efficient use of available resources. The Pee Dee River Basin is subdivided into 77 watersheds or hydrologic units within the State of South Carolina. Within the Department's Pee Dee Basin are the Lynches River Basin, the Black River Basin, the Pee Dee River Basin, and a basin incorporating the Waccamaw River, the Sampit River, the Atlantic Intracoastal Waterway (AIWW), and Winyah Bay. The hydrologic units used are the USDA Natural Resource Conservation Service 11-digit codes for South Carolina. The hydrologic unit map of South Carolina was updated in 1999 to the 14-digit level, subdividing each watershed and providing more detail. In the updating process, some boundaries were moved affecting acreage and landuse information, and some units were renumbered. All water quality related evaluations will be made at the watershed level. The stream names used are derived from USGS topographic maps. USEPA Reach data (RF3) were used for the digital hydrography and stream length estimates. Based on the blue line streams of the USGS topo maps, it is likely that portions of the stream network in terms of perennial, intermittent, and ephemeral streams are not represented.

The watershed-based assessments fulfill a number of USEPA reporting requirements including various activities under §303(d), §305(b), §314, and §319 of the Clean Water Act (CWA). Section 303(d) requires a listing of waters located within a watershed that do not meet applicable water quality standards. Section 305(b) requires that the State biennially submit a report that includes a water quality description and analysis of all navigable waters to estimate environmental impacts. Section 314 requires that the State submit a biennial report that identifies, classifies, describes, and assesses the status and trends in water quality of publicly owned lakes. The watershed plan is also a logical evaluation, prioritization, and implementation tool for nonpoint source (§319) requirements. Nonpoint source best management practices (BMPs) can be selected by identifying water quality impairments and necessary controls, while considering all the activities occurring in the drainage basin.

The assessment also allows for more efficient issuance of National Pollutant Discharge Elimination System (NPDES) and State wastewater discharge permits. Proposed permit issuances within a watershed may be consolidated and presented to the public in groups, rather than one at a time, allowing the Department to realize a resource savings, and the public to realize an information advantage.

The Watershed Water Quality Assessment (WWQA) is a geographically-based document that describes, at the watershed level, all water quality related activities that may potentially have a negative impact on water quality. The Watershed Implementation Staff investigates the impaired streams mentioned in the WWQA to determine, where possible, the source of the impairment and recommends solutions to correct the problems. As part of this effort, the watershed staff is forging partnerships with various federal and state agencies, local governments, and community groups. In particular, the Department's Watershed Program and the Natural Resource Conservation Service (NRCS) district offices are working together to address some of the nonpoint source (NPS) concerns in the basin. By combining NRCS's local knowledge of land use and the Department's knowledge of water quality, we are able to build upon NRCS's close relationships with landowners and determine where NPS projects are needed. These projects may include educational campaigns or special water quality studies.

Factors Assessed in Watershed Evaluations

Water Quality

The Water Program comprises activities within SCDHEC's Bureau of Water and Bureau of Environmental Services. The Program's objectives are to ensure that the water in South Carolina is safe for drinking and recreation, and that it is suitable to support and maintain aquatic flora and fauna. Functions include planning, permitting, compliance assurance, enforcement, and monitoring. This section provides an overview of water quality evaluation and protection activities.

Monitoring

In an effort to evaluate the State's water quality, the Department operates and collects data from a permanent statewide network of primary and secondary ambient monitoring stations and flexible, rotating watershed monitoring stations. The ambient monitoring network is directed toward determining long-term water quality trends, assessing attainment of water quality standards, identifying locations in need of additional attention, and providing background data for planning and evaluating stream classifications and standards.

Ambient monitoring data are also used in the process of formulating permit limits for wastewater discharges with the goal of maintaining State and Federal water quality standards and criteria in the receiving streams in accordance with the goals of the Clean Water Act. These standards and criteria define the instream chemical concentrations that provide for protection and reproduction of aquatic flora and fauna, help determine support of the classified uses of each waterbody, and serve as instream limits for the regulation of wastewater discharges or other activities. In addition, these data are used in the preparation of the biennial §305(b) report to Congress, which summarizes the State's water quality with respect to attainment of classified uses by comparing the ambient monitoring network data to the State Water Quality Standards.

SCDHEC's ambient water quality monitoring network comprises three station types: primary (P), secondary (S), and watershed (W) stations. Primary stations are sampled on a monthly basis year round, and are located in high water-use areas or upstream of high water-use areas. The static primary station network is operated statewide, and receives the most extensive parameter coverage, thus making it best suited for detecting long term trends.

Secondary stations are sampled monthly from May through October, a period critical to aquatic life, and is characterized by higher water temperatures and lower flows. Secondary stations are located in areas where specific monitoring is warranted due to point source discharges, or in areas with a history of water quality problems. Secondary station parameter coverage is less extensive and more flexible than primary or watershed station coverages. The number and locations of secondary stations have greater annual variability than do those in the primary station network, and during a basin's target year may have parameter coverage and sampling frequency duplicating that of primary or watershed stations.

Watershed stations are sampled on a monthly basis, year round, during a basin's target year. Additional watershed stations may be sampled monthly from May through October to augment the secondary station network. Watershed stations are located to provide more complete and representative coverage within the larger drainage basin, and to identify additional monitoring needs. Watershed stations have the same parameter coverage as primary stations.

Many pollutants may be components of point source discharges, but may be discharged in a discontinuous manner, or at such low concentrations that water column sampling for them is impractical. Some pollutants are also common in nonpoint source runoff, reaching waterways only after a heavy rainfall; therefore, in these situations, the best media for the detection of these chemicals are sediment and fish tissue where they may accumulate over time. Their impact may also affect the macroinvertebrate community.

Ambient trend monitoring is conducted to collect data to indicate general biological conditions of State waters which may be subject to a variety of point and nonpoint source impacts. In 1991, the Department began incorporating ambient macroinvertebrate data into the development of Watershed Water Quality Assessments. Ambient sampling is also used to establish regional reference or "least impacted" sites from which to make comparisons in future monitoring. Additionally, special macroinvertebrate studies, in which stream specific comparisons among stations located upstream and downstream from a known discharge or nonpoint source area, are used to assess impact.

Qualitative sampling of macroinvertebrate communities is the primary bioassessment techniques used in ambient trend monitoring. A habitat assessment of general stream habitat availability and a substrate characterization is conducted at each site. Annual ambient monitoring is conducted during low flow "worst case" conditions in July - September. Some coastal plain streams that have no flow conditions in the summer months may be sampled in the winter (January-March). This technique may also be used in special studies for the purpose of determining if, and to what extent, a wastewater discharge or nonpoint source runoff is impacting the receiving stream. A minimum of two sample locations, one upstream and one downstream from a discharge or runoff area, is collected. At least one downstream recovery station is also established when appropriate. Sampling methodology follows procedures described in Standard Operating Procedures, Biological Monitoring.

Aquatic sediments represent a historical record of chronic conditions existing in the water column. Pollutants bind to particulate organic matter in the water column and settle to the bottom where they become part of the sediment "record". Accumulated sediments not only reflect the impact of point source discharges, but also incorporate nonpoint source pollution washed into the stream during rain events. As a result, contaminant concentrations originating from irregular and highly variable sources are recorded in the sediment. The sediment concentrations at a particular location do not vary as rapidly with time as do the water column concentrations. Thus, the sediment record may be read at a later time, unrelated to the actual release time. Lakes act as settling basins for materials entering the lake system directly from a discharge or indirectly from the land surface washed into streams. Therefore, it is not unusual for lake sediment concentrations to be higher than sediment concentrations found in streams. This is especially true for chromium, copper, and zinc.

The ambient monitoring program, has the capability of sampling a wide range of media and analyzing them for the presence or effects of contaminants. Ambient monitoring data from 47 primary (P) stations, 76 secondary (S) stations, 36 watershed (W) stations, and 21 biological (BIO) stations were reviewed for the Pee Dee River Basin.

Classified Waters, Standards, and Natural Conditions

The waters of the State have been classified in regulation based on the desired uses of each waterbody. State standards for various parameters have been established to protect all uses within each classification. The water-use classifications that apply to this basin are as follows.

Class ORW, or "outstanding resource waters", are freshwaters or saltwaters which constitute an outstanding recreational or ecological resource, or those freshwaters suitable as a source for drinking water supply purposes, with treatment levels specified by the Department.

Class A were freshwaters which were suitable for primary contact recreation. This class was also suitable for uses listed as Class B. As of April 1992, Class A and Class B waters were reclassified as Class FW which protects for primary contact recreation.

Class B were freshwaters which were suitable for secondary contact recreation and as a source for drinking water supply, after conventional treatment, in accordance with the requirements of the Department. These waters were suitable for fishing, and the survival and propagation of a balanced indigenous aquatic community of fauna and flora. This class was also suitable for industrial and agricultural uses. The main difference between the Class A and B freshwater was the fecal coliform standard. Class A waters were not to exceed a geometric mean of 200/100ml, based on 5 consecutive samples during any 30 day period; nor were more than 10% of the total samples during any 30 day period to exceed 400/100ml. Class B waters were not to exceed a geometric mean of 1000/100ml, based on 5 consecutive samples during any 30 day period; nor were more than 20% of the total samples during any 30 day period to exceed 2000/100ml. As of April 1992, Class A and Class B waters were reclassified as Class FW, which protects for primary contact recreation.

Class FW, or "freshwaters", are freshwaters which are suitable for primary and secondary contact recreation and as a source for drinking water supply, after conventional treatment, in accordance with the requirements of the Department. These waters are suitable for fishing, and the survival and propagation of a balanced indigenous aquatic community of fauna and flora. This class is also suitable for industrial and agricultural uses.

Class SFH, or "shellfish harvesting" waters, are tidal saltwaters protected for shellfish harvesting, and are suitable also for uses listed in Classes SA and SB.

Class SA comprises "tidal saltwaters" suitable for primary and secondary contact recreation, crabbing and fishing. These waters are not protected for harvesting of clams, mussels, or oysters for market purposes or human consumption. The waters are suitable for the survival and propagation of a balanced indigenous aquatic community of marine fauna and flora.

Class SB are "tidal saltwaters" suitable for the same uses listed in SA. The difference between the Class SA and SB saltwater concerns the DO limitations. Class SA waters must maintain daily DO averages not less than 5.0 mg/l, with a minimum of 4.0 mg/l, and Class SB waters maintain DO levels not less than 4.0 mg/l.

Site specific numeric standards (*) for surface waters may be established by the Department to replace the numeric standards found in Regulation 61-68 or to add new standards not contained in R.61-68. Establishment of such standards shall be subject to public participation and administrative procedures for adopting regulations. In addition, such site specific numeric standards shall not apply to tributary or downstream waters unless specifically described in the water classification listing in R.61-69.

The standards are used as instream water quality goals to maintain and improve water quality and also serve as the foundation of the Bureau of Water's program. They are used to determine permit limits for treated wastewater dischargers and any other activities that may impact water quality. Using mathematical Wasteload Allocation Models, the impact of a wastewater discharge on a receiving stream, where flow is unregulated by dams, is predicted using 7Q10 streamflows. These predictions are then used to set limits for different pollutants on the National Pollutant Discharge Elimination System (NPDES) permits issued by the Department. The NPDES permit limits are set so that, as long as a permittee (wastewater discharger) meets the established permit limits, the discharge should not cause a standards violation in the receiving stream. All discharges to the waters of the State are required to have an NPDES permit and must abide by those limits, under penalty of law.

Classifications are based on desired uses, not on natural or existing water quality, and are a legal means to obtain the necessary treatment of discharged wastewater to protect designated uses. Actual water quality may not have a bearing on a waterbody's classification. A waterbody may be reclassified if desired or existing public uses justify the reclassification and the water quality necessary to protect these uses is attainable. A classification change is an amendment to a State regulation and requires public participation, SCDHEC Board approval, and General Assembly approval.

Natural conditions may prevent a waterbody from meeting the water quality goals as set forth in the standards. The fact that a waterbody does not meet the specified numeric standards for a particular classification does not mean the waterbody is polluted or of poor quality. Certain types of waterbodies (ie. swamps, lakes, tidal creeks) may naturally have water quality lower than the numeric standards. A waterbody can have water quality conditions below standards due to natural causes and still meet its use classification. A site specific numeric standard may be established by the Department after being subjected to public participation and administrative procedures for adopting regulations. Site specific numeric standards apply only to the stream segment described in the water classification listing, not to tributaries or downstream unspecified waters.

Lake Trophic Status

Trophic status is a characterization of a lake's biological productivity based on the availability of plant nutrients, especially phosphorus. Commonly accepted systems for describing trophic status recognize a range of conditions, with "oligotrophic" indicating the least biologically productive lakes and "eutrophic" indicating significantly higher levels of productivity. A lake's trophic condition may shift over time. The trophic condition of South Carolina lakes is monitored through SCDHEC’s network of routine sampling stations and through periodic sampling of additional lakes. All lakes of at least 40 acres in area that offer public access are monitored.

Most commonly, large external inputs of nutrients from point and/or nonpoint sources lead to advanced eutrophication. Advanced eutrophication is indicated by excessive algal growth, rapid sedimentation, and seasonal or daily dissolved oxygen deficiencies. Advanced eutrophication can cause undesirable shifts in the composition of aquatic life, or even fish kills. Restoring a lake to a more desirable trophic condition requires reductions in nutrient inputs, usually phosphorus.

Shellfish Harvesting Waters

South Carolina's coastal area consists of 570,314 acres of surface water with an assigned classification designated for the harvest of molluscan shellfish. This coastal area is divided into 24 shellfish management areas with a total of 499 active monitoring stations. The purpose of this monitoring network is to provide data which accurately reflects the sanitary conditions of coastal shellfish and shellfish growing waters in South Carolina to ensure that the health of shellfish consumers is protected. These data are used in the preparation of the biennial §305(b) report to Congress, which summarizes the State's water quality with respect to attainment of classified uses by comparing monitoring network data to the State Water Quality Standards. All shellfish waters receive one of the following harvest classifications:

Approved area classification shall be determined upon a sanitary survey which includes water samples collected from stations in the designated area adjacent to actual or potential sources of pollution. Growing areas shall be classified "approved" when the sanitary survey concludes that fecal material, pathogenic microorganisms, and poisonous or deleterious substances are not present in concentrations which render shellfish unsafe for human consumption.

Conditionally Approved growing areas are subject to temporary conditions of actual or potential pollution. When such events are predictable as in the malfunction of wastewater treatment facilities, nonpoint source pollution from rainfall runoff, discharge of a major river, potential discharges from dock or harbor facilities that may affect water quality, a management plan describing conditions under which harvesting will be allowed shall be adopted by the Department, prior to classifying an area as "conditionally approved." Shellfish shall not be directly marketed from a "conditionally approved" area until conditions for an "approved" classification have been met for a time that should insure the shellfish are safe for consumption. Shellstock from "conditionally approved" areas which have been subjected to temporary conditions of actual or potential pollution may be relayed to "approved" areas for purification or depurated through controlled purification operations only by special permit issued by the Department.

Restricted growing areas show a limited degree of pollution or the presence of deleterious or poisonous substances to a degree which may cause the water quality to fluctuate unpredictably or at such a frequency that a "conditionally approved" area classification is not feasible. Shellfish may be harvested from areas classified as "restricted" only for the purposes of relaying or depuration and only by special permit issued by the Department and under Department supervision.

Conditionally Restricted growing areas are subject to temporary conditions of actual or potential pollution. When such events are predictable as in the malfunction of wastewater treatment facilities, nonpoint source pollution from rainfall runoff, discharge of a major river, potential discharges from dock or harbor facilities that may affect water quality, a management plan describing conditions under which harvesting will be allowed shall be prepared by the Department, prior to classifying an area as "conditionally restricted." Shellfish may be harvested from areas classified as "conditionally restricted" only for the purposes of relaying or depuration and only by permit issued by the Department and under Department supervision.

Prohibited growing areas include those for which there is no current sanitary survey, or for which monitoring data show unsafe levels of fecal material, pathogenic microorganisms, or poisonous or deleterious substances in the growing area, or indicate that such substances could potentially reach quantities which could render shellfish unfit or unsafe for human consumption.

Shellfish management areas 1-5 are located within the Pee Dee River Basin. This area consists of 43,497 acres of surface waters with a classification designated for the harvest of molluscan shellfish. There are 74 active shellfish program monitoring sites in the Pee Dee River Basin and are described in Appendix E., and located on the watershed maps in Appendix F. Evaluation of growing areas is conducted annually; routine monitoring is conducted monthly. For current information on growing area classifications, contact SCDHEC's Shellfish Sanitation Program at 843-740-1590 (Charleston) or 803-898-4300.

Water Quality Indicators

Water quality data are used to describe the condition of a waterbody, to help understand why that condition exists, and to provide some clues as to how it may be improved. Water quality indicators include physical, chemical, and biological measurements. Copies of the Standard Operating Procedures used for these measurements are available from the Department's Bureau of Water and the Bureau of Environmental Services.

MACROINVERTEBRATE COMMUNITY

Macroinvertebrates are aquatic insects and other aquatic invertebrates associated with the substrates of waterbodies (including, but not limited to, streams, rivers, tidal creeks, and estuaries). Macroinvertebrates can be useful indicators of water quality because these communities respond to integrated stresses over time that reflect fluctuating environmental conditions. Community responses to various pollutants (e.g. organic, toxic, and sediment) may be assessed through interpretation of diversity, known organism tolerances, and in some cases, relative abundances and feeding types.

FISH TISSUE

Many pollutants occur in such low concentrations in the water column that they are usually below analytical detection limits. Over time many of these chemicals may accumulate in fish tissue to levels that are easily measured. By analyzing fish tissue it is possible to see what pollutants may be present in waterbodies at very low levels. This information can also be used to determine if consumption of the fish pose any undue human health concerns and to calculate consumption rates that are safe.

DISSOLVED OXYGEN

Oxygen is essential for the survival and propagation of aquatic organisms. If the amount of oxygen dissolved in water falls below the minimum requirements for survival, aquatic organisms or their eggs and larvae may die. A severe example is a fish kill. Dissolved oxygen (DO) varies greatly due to natural phenomena, resulting in daily and seasonal cycles. Different forms of pollution also can cause declines in DO.

Changes in DO levels can result from temperature changes or the activity of plants and other organisms present in a waterbody. The natural diurnal (daily) cycle of DO concentration is well documented. Dissolved oxygen concentrations are generally lowest in the morning, climbing throughout the day due to photosynthesis and peaking near dusk, then steadily declining during the hours of darkness.

There is also a seasonal DO cycle in which concentrations are greater in the colder, winter months and lower in the warmer, summer months. Streamflow (in freshwater) is generally lower during the summer and fall, and greatly affects flushing, reaeration, and the extent of saltwater intrusion, all of which affect dissolved oxygen values.

BIOCHEMICAL OXYGEN DEMAND

Five-day biochemical oxygen demand (BOD_5) is a measure of the amount of dissolved oxygen consumed by the decomposition of carbonaceous and nitrogenous matter in water over a five-day period. The BOD_5 test indicates the amount of biologically oxidizable carbon and nitrogen that is present in wastewater or in natural water. Matter containing carbon or nitrogen uses dissolved oxygen from the water as it decomposes, which can result in a dissolved oxygen decline. The quantity of BOD_5 discharged by point sources is limited through the National Pollutant Discharge Elimination System (NPDES) permits issued by the Department. The discharge of BOD_5 from a point source is restricted by the permits so as to maintain the applicable dissolved oxygen standard.

PH

pH is a measure of the hydrogen ion concentration of water, and is used to indicate degree of acidity. The pH scale ranges from 0 to 14 standard units (SU). A pH of 7 is considered neutral, with values less than 7 being acidic, and values greater than 7 being basic.

Low pH values are found in natural waters rich in dissolved organic matter, especially in Coastal Plain swamps and black water rivers. The tannic acid released from the decomposition of vegetation causes the tea coloration of the water and low pH.

High pH values in lakes during warmer months are associated with high phytoplankton (algae) densities. The relationship between phytoplankton and daily pH cycles is well established. Photosynthesis by phytoplankton consumes carbon dioxide during the day, which results in a rise in pH. In the dark, phytoplankton respiration releases carbon dioxide. In productive lakes, carbon dioxide decreases to very low levels, causing the pH to rise to 9-10 SU. Continuous flushing in streams prevents the development of significant phytoplankton populations and the resultant chemical changes in water quality.

FECAL COLIFORM BACTERIA

Coliform bacteria are present in the digestive tract and feces of all warm-blooded animals, including humans, poultry, livestock, and wild animal species. Fecal coliform bacteria are themselves generally not harmful, but their presence indicates that surface waters may contain pathogenic microbes. Diseases that can be transmitted to humans through water contaminated by improperly treated human or animal waste are the primary concern. At present, it is difficult to distinguish between waters contaminated by animal waste and those contaminated by human waste.

Public health studies have established correlations between fecal coliform numbers in recreational and drinking waters and the risk of adverse health effects. Based on these relationships, the USEPA and SCDHEC have developed enforceable standards for surface waters to protect against adverse health effects from various recreational or drinking water uses. Proper waste disposal or sewage treatment prior to discharge to surface waters minimizes this type of pollution.

NUTRIENTS

Oxygen demanding materials and plant nutrients are common substances discharged to the environment by man's activities, through wastewater facilities and by agricultural, residential, and stormwater runoff. The most important plant nutrients, in terms of water quality, are phosphorus and nitrogen. In general, increasing nutrient concentrations are undesirable due to the potential for accelerated growth of aquatic plants, including algae. Nuisance plant growth can create imbalances in the aquatic community, as well as aesthetic and access issues. High densities of phytoplankton (algae) can cause wide fluctuations in pH and dissolved oxygen. South Carolina has narrative standards for nutrients in water and the USEPA has issued recommendations for phosphorus concentrations to prevent over-enrichment.

The forms of nitrogen routinely analyzed at SCDHEC stations are ammonia and ammonium nitrogen (NH_3/NH_4), total Kjeldahl nitrogen (TKN), and nitrite and nitrate nitrogen (NO_2/NO_3). Ammonia and ammonium are readily used by plants. TKN is a measure of organic nitrogen and ammonia in a sample. Nitrate is the product of aerobic transformation of ammonia, and is the most common form used by aquatic plants. Nitrite is usually not present in significant amounts.

Total phosphorus (TP) is commonly measured to determine phosphorus concentrations in surface waters. TP includes all of the various forms of phosphorus (organic, inorganic, dissolved, and particulate) present in a sample.

TURBIDITY

Turbidity is an expression of the scattering and absorption of light through water. The presence of clay, silt, fine organic and inorganic matter, soluble colored organic compounds, and plankton and other microscopic organisms increases turbidity. Increasing turbidity can be an indication of increased runoff from land. It is an important consideration for drinking water as finished water has turbidity limits.

TOTAL SUSPENDED SOLIDS

Total Suspended Solids (TSS) are the suspended organic and inorganic particulate matter in water. Although increasing TSS can also be an indication of increased runoff from land, TSS differs from turbidity in that it is a measure of the mass of material in, rather than light transmittance through, a water sample. High TSS can adversely impact fish and fish food populations and damage invertebrate populations. There are no explicit State standards for TSS.

HEAVY METALS

Concentrations of cadmium, chromium, copper, lead, mercury, and nickel in water are routinely measured by the Department to compare to State standards intended to protect aquatic life and human health. These metals occur naturally in the environment, and many are essential trace elements for plants and animals. Human activities, such as land use changes and industrial and agricultural processes have resulted in an increased flux of metals from land to water. Atmospheric inputs are recognized as important sources of metals to aquatic systems. Metals are released to the atmosphere from the burning of fossil fuels (coal, oil, gasoline), wastes (medical, industrial, municipal), and organic materials. The metals are then deposited on land and in waterways from the atmosphere via rainfall and attached to particulates (dry deposition).

Assessment Methodology

The Watershed Water Quality Assessment is a geographically-based document that describes, at the watershed level, water quality as well as conditions and activities related to water quality. This section provides an explanation of the information assessment methodology used to generate the watershed-level summaries. Water quality data summaries used in this assessment are presented in Appendices A-D.

USE SUPPORT DETERMINATION

At the majority of SCDHEC's surface water monitoring stations, samples for analysis are collected as surface grabs once per month, quarter, or year, depending on the parameter. Grab samples collected at a depth of 0.3 meters are considered surface measurements, and are used to establish representative physical conditions and chemical concentrations in the waterbodies sampled. At most stations sampled by boat, dissolved oxygen and temperature are sampled as a water column profile, with measurements being made at a depth of 0.3 meters below the water surface and at one-meter intervals to the bottom. At stations sampled from bridges, these parameters are measured only at a depth of 0.3 meters. All water and sediment samples are collected and analyzed according to standard procedures. Macroinvertebrate community structure is analyzed routinely at selected stations as a means of detecting adverse biological impacts on the aquatic fauna due to water quality conditions which may not be readily detectable in the water column chemistry.

For the purpose of assessment, only results from surface samples are used in water quality standards comparisons and trend assessments. This information is considered to represent "average" conditions, as opposed to extremes, because of the inability to target individual high or low flow events on a statewide basis. Results from water quality samples can be compared to State standards and USEPA criteria, with some restrictions due to time of collection and sampling frequency. The monthly sampling frequency employed in the ambient monitoring network may be insufficient for strict interpretation of certain standards. The USEPA does not define the sampling method or frequency other than indicating that it should be "representative." A grab sample is considered to be representative for indicating excursions relative to standards: a single grab sample is more representative of a one-hour average than a four-day average, more representative of a one-day average than a one-month average, and so on (see also Screening & Additional Considerations for Water Column Metals below). When the sampling method or frequency does not agree with the intent of the particular standard, conclusions about water quality should be considered as only an indication of conditions.

The time period used to assess standards compliance is the most recent complete five years of data, which for the Pee Dee River Basin is 1994 through 1998.

AQUATIC LIFE USE SUPPORT

One important goal of the Clean Water Act and State standards is to maintain the quality of surface waters in order to provide for the survival and propagation of a balanced indigenous aquatic community of fauna and flora. The degree to which aquatic life is protected (aquatic life use support) is assessed by comparing important water quality characteristics and the concentrations of potentially toxic pollutants with standards. Aquatic life use support is based on the percentage of standards excursions at a sampling site, and where data are available, the composition and functional integrity of the biological community. For lakes, support of aquatic life uses is also evaluated using a measure of trophic state. A number of waterbodies have been given specific standards for pH and dissolved oxygen, which reflect natural conditions.

For assessment purposes, a dissolved oxygen (DO) standard of not less than 4 mg/l is used for Class SB, a standard of not less than 6 mg/l is used for TN and TPGT, and a daily average not less than 5 mg/l with a low of 4 mg/l is used for all other Classes. The term excursion is used to describe a DO concentration measurement of less than the stated standard. Dissolved oxygen and pH may vary from the ranges specified in the standards due to a variety of natural causes.

For pH, there are several acceptable ranges applied depending on the Class of water: 6-8 SU for TPGT; 6-8.5 SU for FW; 5-8.5 SU for FW*; and 6.5-8.5 for SFH, SA, and SB. For DO and pH, if 10 percent or less of the samples contravene the appropriate standard, then aquatic life uses are said to be fully supported. A percentage of standards excursions between 11-25 is considered partial support, and a percentage greater than 25 is considered to represent nonsupport, unless excursions are due to natural conditions.

When comparing sampling data to DO standards, it is necessary to consider sampling bias due to season or tide stage. Samples are collected as a single instantaneous grab sample, which is not truly representative of the daily average used as the criterion for most classifications. Secondary stations are sampled only during summer months and generally experience a higher percentage of DO excursions as a result. It is essential to examine the data to ascertain such patterns of excursions before summarily concluding that the indicated violations constitute poor water quality.

For any individual toxicant (heavy metals, priority pollutants, chlorine, ammonia), if the acute aquatic life standard is exceeded in more than 10 percent of the samples, based on at least ten samples, aquatic life uses are not supported. If the acute aquatic life standard is exceeded more than once, but in less than or equal to 10 percent of the samples, uses are partially supported. If fewer than ten samples were collected, discretion must be used and other factors considered, such as the magnitude of the excursions or number of toxicants with excursions. In such a circumstance, the site is prioritized for the collection of biological data, or additional monitoring and investigation, to verify the true situation. Biological data are the ultimate deciding factor for determining support of aquatic life uses, regardless of chemical conditions.

MACROINVERTEBRATE DATA INTERPRETATION

Macroinvertebrate community assessments are used, where available, to supplement or verify Aquatic Life Use Support determinations and to evaluate potential impacts from the presence of sediment contaminants. Aquatic and semi-aquatic macroinvertebrates are identified to the lowest practical taxonomic level depending on the condition and maturity of specimens collected. The EPT Index and the North Carolina Biotic Index are the main indices used in analyzing macroinvertebrate data. To a lesser extent, taxa richness and total abundance may be used to help interpret data.

The EPT Index or the Ephemeroptera (mayflies) - Plecoptera (stoneflies) - Trichoptera (caddisflies) Index is the total taxa richness of these three generally pollution-sensitive orders. EPT values are compared with least impacted regional sites. The Biotic Index for a sample is the average pollution tolerance of all organisms collected, based on assigned taxonomic tolerance values. A database is currently being developed to establish significant EPT index levels to be used in conjunction with the Biotic Index to address aquatic life use support.

Taxa richness is the number of distinct taxa collected and is the simplest measure of diversity. High taxa richness is generally associated with high water quality. Increasing levels of pollution progressively eliminate the more sensitive taxa, resulting in lower taxa richness. Total abundance is the enumeration of all macroinvertebrates collected at a sampling location. This is generally not regarded as a qualitative metric. However, when gross differences in abundance occur between stations this metric may be considered as a potential indicator.

RECREATIONAL USE SUPPORT

The degree to which the swimmable goal of the Clean Water Act is attained (recreational use support) is based on the frequency of fecal coliform bacteria excursions, defined as greater than 400/100 ml for all surface water classes. Comparisons to the bacteria geometric mean standard are not considered appropriate based on sampling frequency and the intent of the standard. If 10 percent or less of the samples are greater than 400/100 ml then recreational uses are said to be fully supported. A percentage of standards excursions between 11-25 percent is considered partial support of recreational uses, and greater than 25 percent is considered to represent nonsupport of recreational uses.

FISH CONSUMPTION USE SUPPORT

The Department uses a risk-based approach to evaluate mercury concentrations in fish tissue and to issue consumption advisories in affected waterbodies. This approach contrasts the average daily exposure dose to the reference dose (RfD). Using these relationships, fish tissue data are interpreted by determining the consumption rates that would not be likely to pose a health threat to adult males and nonpregnant adult females. Because an acceptable RfD for developmental neurotoxicity has not been developed, pregnant women, infants, and children are advised to avoid consumption of fish from any waterbody where an advisory was issued.

Fish consumption use support is determined by the occurrence of advisories or bans on consumption for a waterbody. For the support of fish consumption uses, a fish consumption advisory indicates partial use support, a consumption ban indicates nonsupport of uses.

HUMAN HEALTH STANDARDS

State standards for human health are also evaluated in the preparation of the Watershed Water Quality Assessments. For contaminants with human health standards (e.g. heavy metals, pesticides), a potential human health threat is indicated if the median concentration exceeds the standard.

Additional Screening and Prioritization Tools

Evaluation of water quality data and other supplemental information facilitates watershed planning. Information from the following sources is used to develop watershed-based protection and prevention strategies.

Long-Term Trend Assessment

As part of the watershed water quality assessments, surface data from each station are analyzed for statistically significant long-term trends using a modification of Kendall's tau, which is a nonparametric test removing seasonal effects. Flows are not available for most stations, and the parametric concentrations are not flow-corrected. Seasonal Kendall's tau analysis is used to test for the presence of a statistically significant trend of a parameter, either increasing or decreasing, over a fifteen-year period. It indicates whether the concentration of a given parameter is exhibiting consistent change in one direction over the specified time period. A two sided test at $p = 0.1$ is used to determine statistically significant trends, and the direction of trend. An estimate of the magnitude of any statistically significant trend is calculated.

A rigorous evaluation for trends in time-series data usually includes a test for autocorrelation. The data are not tested for autocorrelation prior to the trend analysis. It is felt that autocorrelation would not seriously compromise a general characterization of water quality trends based on such a long series of deseasonalized monthly samples.

One of the advantages of the seasonal Kendall test is that values reported as being below detection limits (DL) are valid data points in this nonparametric procedure, since they are all considered to be tied at the DL value. When the DL changed during the period of interest, all values are considered to be tied at the highest DL occurring during that period. Since it is possible to measure concentrations equal to the value of the DL, values less than DL are reduced by subtraction of a constant so that they remain tied with each other, but are less than the values equal to the DL. Since fecal coliform bacteria detection limits vary with sample dilution, there is no set DL; therefore, for values reported as less than some number, the value of the number is used.

For the purposes of this assessment, long-term trends in selected parameters were examined using data collected from 1984 through 1998. In 1992 a phosphate detergent ban was instituted in South Carolina, so for total phosphorus a second trend assessment is included for the period 1992 through 1998. For total phosphorus it is this second time period that is reported in the text.

Sediment Screening

There are no sediment standards; therefore, in order to identify sediments with elevated metals concentrations, percentiles are constructed using five years of statewide sediment data. Only values greater than the detection limit were used for chromium, copper, nickel, lead, and zinc. Because so few concentrations of cadmium and mercury are measured above the detection limit, all samples were pooled for these metals. A sediment metal concentration is considered to be high if it is in the top 10% of the pooled results, and very high if it is in the top 5%. Any analytical result above detection limits is flagged for pesticides, PCBs, and other priority pollutants. Sites with noted high metals concentrations or the occurrence of other contaminants above detection limits are prioritized for the collection of biological data, or additional monitoring and investigation, to verify the true situation.

For saltwater sediments, national studies have been conducted by the National Oceanic and Atmospheric Administration (NOAA) and the State of Florida which have developed Sediment Quality Guidelines (SQGs) for the United States and the southeastern region. These SQGs summarize all published toxicology and biomonitoring studies for a given contaminant and ranked them from lowest to highest concentration where an adverse effect was observed. The tenth percentile of the ranked data, from all published studies that reported an adverse effect, is termed the Effects Range Low (ERL) or Threshold Effects Level (TEL) and represents the threshold concentration for toxicity to occur. The median concentration where adverse effects in benthos are observed (the fiftieth percentile) is termed the Effects Range Median (ERM) or Probable Effects Levels (PEL). Measured sediment contaminant levels may be compared with ERLs/ERMs or TELs/PELs to predict potential probability for sediment bound contaminants to cause toxicity in benthic faunal communities. Saltwater sediment contaminant levels were compared with existing sediment quality guidelines by both individual compound. Sites with sediments which had individual chemical contaminant concentrations which exceeded ERL/TEL and ERM/PEL guideline levels are identified to indicate that trace metal, pesticide, PAH or PCB concentrations exceeded levels potentially toxic to estuarine organisms.

WATER COLUMN METALS ANALYSES

The USEPA criteria for heavy metals to protect aquatic life are specified as a four-day average and a one-hour average, and have been adopted as State standards. Because of the quarterly sampling frequency for heavy metals, comparisons to chronic toxicity standards (four-day average concentration) are not considered appropriate; therefore, only the acute standard (one-hour average) for the protection of aquatic life is used in the water quality assessment (Table 1).

Zinc and copper are elevated in surface waters statewide and concentrations are frequently measured in excess of the calculated acute aquatic life standards. To identify areas where zinc, copper, and other metals are elevated in the water column above normal background concentrations, concentrations greater than the detection limit from all SCDHEC monitoring sites statewide for a five year period are pooled and the 90th and 95th percentiles are computed. This is done separately for each metal for both fresh and saltwaters. The individual measurements from each monitoring station are then compared to these percentiles, as well as to State standards. As in sediments, a metal concentration is referred to as "high" if it is in the top 10% of the pooled results, and "very high" if it is in the top 5%. All water column values referred to as "high" or "very high" are also in excess of the acute aquatic life standard listed in Table 1. For chromium, because so few concentrations are above the detection limit, all samples collected are used to generate the percentiles. Sites with high metals concentrations are prioritized for the collection of biological data, or additional monitoring and investigation, to verify the true situation.

Table 1. Metal Standards in Water (µg/l)

Metal	Present Detection Level	Freshwater 1Hr. Acute Ave.	Saltwater 1Hr. Acute Ave.	Human Health
*Cadmium	10.0	1.79	43.0	5.00
Chromium (VI)	10.0	16.00	1100.0	100.00
*Copper	10.0	9.22	2.9	

*Lead	50.0	33.78	140.0	
Mercury	0.2	2.40	2.1	0.15
*Nickel	20.0	789.00	75.0	100.00
*Zinc	10.0	65.00	95.0	5000.00
* Freshwater standards based on a hardness of 50 mg/l as $CaCO_3$.				

The analytical procedures used by the Department yield total metal concentration, which is a relatively conservative measure, since the total metal concentration is always greater than the acid-soluble or dissolved fraction. Most heavy metal criteria for freshwater are calculated from formulas using water hardness. The formulas used to calculate criteria values are constructed to apply to the entire United States, including Alaska and Hawaii. As with all the USEPA criteria, there is also a large margin of safety built into the calculations. The applicability of the hardness-based criteria derived from the USEPA formulas to South Carolina waters has been a subject of much discussion. Hardness values vary greatly nationwide (from zero into the hundreds), with South Carolina representing the lower end of the range (statewide average value is approximately 20 mg/l). Representatives of the USEPA Region IV standards group have stated that no toxicity data for hardness values less than 50 mg/l were used in the development of the formulas. They have expressed reservations about the validity of the formulas when applied to hardness values below 50 mg/l. Based on this opinion, South Carolina's State standards for metals are based on a hardness of 50 mg/l for waters where hardness is 50 mg/l or less, resulting in several criteria values below the Department's current analytical detection limits. Therefore, any detectable concentration of cadmium, copper, or lead is an excursion beyond recommended criteria.

The SCDHEC monitoring data have historically indicated that zinc and copper levels in South Carolina waters are elevated relative to USEPA criteria, apparently a statewide phenomenon in both fresh and salt waters, and possibly resulting from natural conditions, nonpoint sources, or airborne deposition. These levels do not appear to adversely affect state fisheries or macroinvertebrate communities, which suggests that the levels are the result of long-term local conditions to which the fauna have adapted, as opposed to point source pollution events. It is difficult to assess the significance of heavy metal excursions due to the questionable applicability of the formulas at low hardness values and calculated criteria below present detection limits.

NPDES Program

The Water Facilities Permitting Division and the Industrial, Agricultural, and Stormwater Permitting Division are responsible for drafting and issuing National Pollutant Discharge Elimination System (NPDES) permits. Facilities are defined as either "major" or "minor". For municipal permits, a facility is considered a "major" if it has a permitted flow of 1 MGD or more and is not a private facility. The determination for industrial facilities is based on facility and stream characteristics, including toxicity, amount of flow, load of oxygen, proximity of drinking water source, potential to exceed stream standards, and potential effect on coastal waters.

Permitting Process

A completed draft permit is sent to the permittee, the SCDHEC District office, and if it is a major permit, to the USEPA for review. A public notice is issued when the permit draft is finalized. Comments from the public are considered and, if justified, a public hearing may be arranged. Both oral and written comments are collected at the hearing, and after considering all information, the Department staff make the decision whether to issue the permit as drafted, issue a modified permit, or to deny the permit. Everyone who participated in the process receives a notice of the final decision. A copy of the final permit will be sent to anyone who requests it. Staff decisions may be appealed according to the procedures in R.61-72.

The permitting Divisions use general permits with statewide coverage for certain categories of NPDES permits. Discharges covered under general permits include utility water, potable surface water treatment plants, potable groundwater treatment plants with iron removal, petroleum contaminated groundwater, mine dewatering activities, aquaculture facilities, bulk oil and gas terminals, hydrostatic test waters (oil & gas lines), and vehicle wash waters. Additional activities proposed for general permits include ready-mix concrete/concrete products and concentrated animal feeding operations. Land application systems for land disposal and lagoons are also permitted.

Wasteload Allocation Process

A wasteload allocation (WLA) is the portion of a stream's assimilative capacity for a particular pollutant that is allocated to an existing or proposed point source discharge. Existing WLAs are updated during the basin review process and included in permits during the normal permit expiration and reissuance process. New WLAs are developed for proposed projects seeking a discharge permit or for existing discharges proposing to increase their effluent loading at the time of application. Wasteload allocations for oxygen demanding parameters are developed by the Water Quality Modeling Section, and WLAs for toxic pollutants and metals are developed by the appropriate permitting division.

The ability of a stream to assimilate a particular pollutant is directly related to its physical and chemical characteristics. Various techniques are used to estimate this capacity. Simple mass balance/dilution calculations may be used for a particular conservative (nondecaying) pollutant while complex models may be used to determine the fate of nonconservative pollutants that degrade in the environment. Waste characteristics, available dilution, and the number of discharges in an area may, along with existing water quality, dictate the use of a simple or complex method of analysis. Projects that generally do not require complex modeling include: groundwater remediation, noncontact cooling water, mine dewatering, air washers, and filter backwash.

Streams are designated either effluent limited or water quality limited based on the level of treatment required of the dischargers to that particular portion of the stream. In cases where the USEPA published effluent guidelines and the minimum treatment levels required by law are sufficient to maintain instream water quality standards, the stream is said to be effluent limited. Streams lacking the assimilative capacity for a discharge at minimum treatment levels are said to be water quality limited. In cases where better than technology limits are required, water quality, not minimum requirements, controls the permit limits. The Department's Water Quality Modeling Section recommends limits for numerous parameters including ammonia nitrogen (NH3-N), dissolved oxygen (DO), total residual chlorine (TRC), and five-day biochemical oxygen demand (BOD5). Limits for other parameters, including metals, toxics, and nutrients are developed by the Water Facilities Permitting Division or the Industrial, Agricultural, and Stormwater Permitting Division in conjunction with support groups within the Department.

Nonpoint Source (NPS) Management Program

NPS water pollution, sometimes called “runoff pollution” or “polluted runoff” does not result from a discharge at a specific, single location (or point), but generally comes from diffuse, numerous sources. Runoff occurring after a rain event may transport sediment from plowed fields, construction sites, or logging operations, pesticides and fertilizers from farms and lawns, motor oil and grease deposited on roads and parking lots, or bacteria containing waste from agricultural animal facilities or malfunctioning septic systems. The rain moves the pollutants across the land to the nearest waterbody or storm drain where they may impact the water quality in creeks, rivers, lakes, estuaries, and wetlands. NPS pollution may also impact groundwater when it is allowed to seep or percolate into aquifers. Adverse effects of NPS pollution include physical destruction of aquatic habitat, fish kills, interference with or elimination of recreational uses of a waterbody (particularly lakes), closure of shellfish beds, reduced water supply or taste and odor problems in drinking water, and increased potential for flooding because waterbodies become choked with sediment.

Congress recognized the growing problem of nonpoint source pollution in the late 1980s, and added NPS provisions to the federal law. Section 319 of the 1987 Amendments to the Clean Water Act required states to assess the nonpoint source water pollution associated with surface and groundwater within their borders and then develop and implement a management strategy to control and abate the pollution. The first Assessment of Nonpoint Source Pollution in South Carolina accomplished this purpose. The Department’s Bureau of Water manages the ongoing State NPS Management Program, which develops strategies and targets waterbodies for priority implementation of management projects. Section 319 funds various voluntary efforts, including watershed projects, which address many aspects of the pollution prevention management measure and provide education, outreach and technical assistance to various groups and agencies. Most of the projects are implemented by cooperating agencies.

Section 6217 of the 1990 Coastal Zone Act Reauthorization Amendments (CZARA) requires states with federally approved Coastal Zone Management Programs to develop Coastal Nonpoint Source Pollution Control Programs. At the federal level, the program is administered and funded jointly by the National Oceanic and Atmospheric Administration (NOAA) and EPA. In South Carolina, the Department's Office of Ocean and Coastal Resource Management and the Bureau of Water are responsible for development and implementation of the program.

Many land activities can individually or cumulatively contribute to NPS pollution. Eight categories of NPS pollution sources have been identified as contributing to water quality degradation in South Carolina: agriculture, forestry, urban areas, marinas and recreational boating, mining, hydrologic modification, wetlands and riparian areas disturbance, land disposal, and groundwater contamination. There are programs, both regulatory and voluntary, in-place that address all eight categories.

Agriculture

In South Carolina, pesticides, fertilizers, animal waste, and sediment are potential sources of agricultural NPS pollution. Agricultural activities also have the potential to directly impact the habitat of aquatic species through physical disturbances caused by livestock or equipment, and through the management of water. The State has laws and regulations that prevent NPS pollution from several agricultural sources including pesticides and animal waste. Funding programs including those under section 319 grants from EPA, cost share funds from USDA under EQIP and CRP are used to implement best management practices that are not covered under regulations. Agriculture land acreage is quantified in the basin-wide and individual watershed evaluations.

Silviculture

Forests comprise a major portion of South Carolina's land base. Sixty-six percent, or 12.6 million acres, of the State's total land area is in timberland. Silvicultural practices associated with road access, harvest, and regeneration of timber present the most significant potential for NPS pollution. Silvicultural activities have the potential to degrade the State's waters through the addition of sediment, nutrients, organics, elevated temperature, and pesticides. Erosion and subsequent sedimentation are the most significant and widespread NPS problems associated with forestry practices. Sudden removal of large quantities of vegetation through harvesting or silvicultural practices can also increase leaching of nutrients from the soil system into surface waters and groundwaters. Programs to abate or control NPS pollution from forestry activities are primarily the responsibility of the SC Forestry Commission (SCFC) and the United States Department of Agriculture's Forest Service (USFS), with other agencies having supplementary programs. The United States Department of Agriculture's Natural Resources Conservation Service (USDA-NRCS) also provides technical assistance to government, landowners, and land users. Forest land acreage is quantified in the basin-wide and individual watershed evaluations.

Urban Areas

Urbanization has been linked to the degradation of urban waterways. The major pollutants found in runoff from urban areas include sediment, nutrients, oxygen-demanding substances, heavy metals, petroleum hydrocarbons, pathogenic bacteria, and viruses. Suspended sediments constitute the largest mass of pollutant loadings to receiving waters from urban areas. Construction sites are a major source of sediment erosion. Nutrient and bacterial sources of contamination include fertilizer usage, pet wastes, leaves, grass clippings, and faulty septic tanks. Petroleum hydrocarbons result mostly from automobile sources. In the 1980's, the average statewide population growth was 11.7 percent, while the coastal counties had an increase of 22 percent, nearly double the State rate during the same time period. This continuing development and population growth has the potential to make urban runoff the most significant source of pollution in waters of the State in the future. Urban land acreage is quantified in the basin-wide and individual watershed evaluations.

SCDHEC has a number of statewide programs that address components of urban NPS pollution. The Bureau of Water (BOW) administers four permitting programs that control runoff from new and existing urban sources. These include the Stormwater and Sediment Reduction program, Municipal Separate Storm Sewer System (MS4), Industrial NPDES Stormwater Permits, and the Section 401 water quality certification program (see p.26). Additional controls for urban runoff in the coastal zone are implemented by SCDHEC's Oceans and Coastal Resources Management (OCRM) through the State Coastal Zone Management Plan.

The Bureau of Environmental Health's Division of Onsite Wastewater Management administers the Onsite Sewage Disposal System program for the entire State, and oversees the permitting for the installation and management of septic systems. Although not associated with urban land use, this Division permits the septic systems of camping facilities if the facility is not on public sewer. The types of camping facilities that fall into this category through R.61-39 are Resident Camps and Family Camps. Resident camps are organized camps where one or more buildings are provided for sleeping quarters. These camps are typically operated for educational, recreational, religious, or health purposes. Family camps are organized camps where campsites are provided for use by the general public or certain groups. The camp sewage is discharged into a public collection, treatment and disposal system if available, or an onsite wastewater treatment and disposal system (septic tank) is used. Camp locations are identified in the appropriate watershed evaluations.

Marinas and Recreational Boating

Potential adverse environmental impacts associated with marinas include dissolved oxygen deficiencies and high concentrations of toxic metals in aquatic organisms. In addition, marina construction activities can lead to the physical destruction of sensitive ecosystems and bottom-dwelling aquatic communities. Presently, there are more than 100 marinas in South Carolina, with 68 of them in the coastal zone. The U.S. Army Corps of Engineers and the SCDHEC are responsible for permitting marinas in South Carolina. Within SCDHEC, the two offices that have marina permitting authority are the Office of Ocean and Coastal Resource Management (SCDHEC OCRM) and the Office of Environmental Quality Control (SCDHEC Bureau of Water). SCDHEC OCRM issues critical area permits for marinas within the critical area of the coastal zone. SCDHEC Bureau of Water issues permits for marinas at all other locations within the State and issues Section 401 Water Quality Certifications (see p.26) for marinas statewide. The U.S. Coast Guard and the S.C. Department of Natural Resources (SCDNR) are responsible for managing recreational boating activity.

Mining

South Carolina's mineral production consists of non-fuel minerals that provide raw materials for construction products and a precious metal industry. Portland cement clays (kaolin and brick), sand and gravel, and crushed stone represent the majority of the total mineral value. At the end of FY 1997-1998, there were 495 mining operations in South Carolina affecting more than 19,000 acres. Surface mining has the potential to generate NPS pollution during mineral exploration, mine development extraction, transportation, mining and processing, product storage, waste disposal, or reclamation. Potential nonpoint source impacts related to mining activities generally include hydrologic modification, erosion and sedimentation, water quality deterioration, fish and wildlife disturbances, and public nuisances.

The Department's Bureau of Land and Waste Management has primary regulatory responsibility for mining activities. Within the Bureau, the Division of Mining and Solid Waste Permitting is responsible for administering and implementing the S.C. Mining Act and its associated regulations. The Mining Act serves as part of an overall management plan for NPS pollution from active mines. Mining activities and locations are identified in the appropriate watershed evaluations.

Hydromodification

Hydrologic modification (or hydromodification) is defined as stream channelization, channel modification, and dam construction. These activities can negatively impact water quality, destroy or modify in-stream habitat and increase streambank and shoreline erosion. Two State permits, implemented by the SCDHEC, are involved in the implementation of management measures for hydromodification. A critical area permit is required for coastal waters, saltwater wetlands, and beaches defined as critical areas. A navigable waters permit is required for the remainder of the State. Implementation of State policy for dam construction is similar to control of other hydromodification projects in South Carolina, requiring the same State permits and certifications. In addition, dams require a State dam safety permit or a State stormwater management and sediment reduction permit.

Wetlands

Twenty-three percent of South Carolina is covered by 4.5 million acres of wetlands. The U.S. Army Corps of Engineers implements the federal program for regulating development in wetlands with guidelines established by EPA. The Corps delineates wetlands and determines which wetlands fall under regulatory jurisdiction and require a federal permit for development. The Wetlands Reserve Program, administered by the NRCS, is designed to restore and protect wetlands. At the state level, the primary focus of wetland regulation is the §401 Water Quality Certification. In the §401 certification process, applications for wetland alterations may be denied or modified due to the special nature of a wetland or the functions that a wetland provides. Wetland impacts must be compensated through restoration, enhancement, preservation, or creation and protected in perpetuity. Future development would be prohibited in these mitigated and legally protected areas. Knowledge of areas that are restricted from development due to mitigation or special water classification is useful in planning future development in a watershed. Wetland acreage is quantified in the basin-wide and individual watershed evaluations.

Land Disposal

Although modern solid waste disposal sites are considered point sources of pollution and regulated, leachate from sanitary landfills and dumps have the potential to pollute large portions of adjacent groundwater aquifers. Toxic compounds are commonly a part of the overall composition of landfill leachate, especially when the landfill has been used for the disposal of toxic chemicals. There are currently 140 permitted landfills in South Carolina. This total represents 35 municipal solid waste landfills (MSWLF), 62 industrial waste landfills, 41 construction and demolition (C&D) landfills, one sludge monofill, and one ash monofill. Regulatory authority over solid waste disposal activities resides with the South Carolina Department of Health and Environmental Control (SCDHEC), Bureau of Land and Waste Management. All active and closed industrial and municipal solid waste landfills are identified in the appropriate watershed evaluations.

Land application is a form of recycling because it allows recovery of elements needed for crop production. Land application of biosolids may be beneficial and environmentally sound when applied at the correct agronomic rate. Land applying biosolids can benefit farmers by offsetting the costs of fertilizer and lime while reducing the pressure on existing landfills. SCDHEC's Bureau of Water, Division of Water Monitoring, Assessment and Protection, Groundwater Quality Section conducts a program to prevent, monitor, and correct groundwater contamination from nonpoint source pollution from land application of wastewater biosolids, solids, animal manures, biosolids, and sewage sludge. All active industrial and municipal land applications are identified in the appropriate watershed evaluations.

Groundwater Contamination

All aquifers in the State are potential Underground Sources of Drinking Water and are protected under the S.C. Water Classifications and Standards. Groundwaters are thus protected in a manner consistent with the SCDHEC groundwater protection strategy. Staff hydrogeologists implement a screening program for nonpoint source impacts from pits, ponds, and lagoons associated with the permitted storage, treatment, and disposal of industrial and municipal wastewaters. In cases where groundwater impact has been identified in violation of S.C. Water Classifications and Standards, appropriate actions will be coordinated with the facility owner to ensure regulatory compliance. The hydrogeologist coordinates with the facility owner to implement source identification, contaminant extent assessments, initiation of contaminant remediation systems, and performance evaluations of corrective actions. In addition to releases from wastewater treatment systems, the staff evaluates releases from other nonpoint sources such as above ground tanks, nonregulated fuel oil tanks, spills and/or leaks. Sites with confirmed groundwater impact will be placed under a Consent Agreement or an Order. SCDHEC's South Carolina Groundwater Contamination Inventory quantifies the status of groundwater quality in South Carolina. The sites in the inventory are known groundwater contamination cases in the State, and are referenced by name and county, and updated annually.

Water Supply

Water treatment facilities are permitted by the Department for municipal and industrial potable water production. As per the 1983 Water Use Reporting and Coordination Act (Act 282), all water uses over 100,000 gallons per day must report their usage. This includes industrial, agricultural, mining, golf courses, public supply, commercial, recreational, hydropower, thermopower, and nuclear power activities. Intake location and the volume removed from a stream are identified in the watershed evaluations for both municipal (potable) and industrial uses.

Capacity Use Program

As authorized under the Groundwater Use Act, the Department may declare a capacity use area if the resource is threatened by increasing demand or the potential problems of saltwater intrusion. The Capacity Use Program requires large groundwater users to obtain a permit in designated coastal areas. Permits are required for groundwater pumped in excess of 100,000 gallons on any day, 1,000,000 in a month, or 10,000,000 in a year. Permit owners are required to report the amount of groundwater pumped.

As part of the Capacity Use Program, the Department monitors a large number of wells to determine the relationship between water levels and pumpage in order to determine regional impacts and evaluate reserve supply. A reserve supply is maintained to offset drought conditions. Georgetown and Horry Counties and the "neck" of Marion County make up the Waccamaw Capacity Use Area in the Pee Dee River Basin.

Growth Potential and Planning

Land use and management can define the impacts to water quality in relation to point and nonpoint sources. Assessing the potential for an area to expand and grow allows for water quality planning to occur and, if appropriate, increased monitoring for potential impairment of water quality. Indicators used to predict growth potential include water and sewer service, road and highway accessibility, and population trends. These indicators and others were used as tools to determine areas within the Pee Dee River Basin having the greatest potential for impacts to water quality as a result of development.

Many counties in the Pee Dee River Basin lack county wide zoning ordinances; therefore, there is little local regulatory power to influence the direction or magnitude of regional growth. The majority of municipalities have zoning ordinances in place; however, much of the growth takes place just outside the municipal boundaries, where infrastructure is inadequate. Section 208 of the Clean Water Act serves to encourage and facilitate the development and implementation of areawide waste treatment management plans. The §208 Areawide Water Quality Management Plans were completed in great detail during the 1970's and have recently been updated. Information from the updated reports is used in the individual watershed evaluations.

Watershed boundaries extend along topographic ridges and drain surrounding surface waters. Roads are commonly built along ridge tops with the best drainage conditions. Cities often develop in proximity to ridges as a result of their plateau terrain. It is not uncommon, then, to find cities or road corridors located along watershed boundaries, and thus influencing or impacting several watersheds.

Watershed Protection and Restoration Strategies

SCDHEC's Bureau of Water is responsible for ensuring that South Carolina's water is safe for drinking and recreation, and suitable to support aquatic life. This section provides an overview of other important Bureau programs and strategies applied statewide to protect and restore water quality. The point and nonpoint source controls described previously assist with achieving these goals.

Under section 303(d) of the Federal Clean Water Act, each state is required to provide a comprehensive inventory of impaired waters for which existing required pollution controls are not stringent enough to achieve State water quality standards or Federal Clean Water Act goals. This biennial list, commonly referred to as the "303(d) list" is the basis for targeting waterbodies for watershed-based solutions. A copy of the current 303(d) list can be obtained by contacting the Bureau of Water. Several Bureau programs address these impaired streams in an effort to restore them.

Total Maximum Daily Load

A Total Maximum Daily Load (TMDL) is the calculated maximum allowable pollutant loading to a waterbody at which water quality standards are maintained. A TMDL is made up of two main components, a load allocation and a wasteload allocation. A load allocation is the portion of the receiving water's loading capacity attributed to existing or future nonpoint sources or to natural background sources. The waste load allocation is the portion of a receiving water's loading capacity allocated to an existing or future point source.

A TMDL is a means for recommending controls needed to meet water quality standards in a particular water or watershed. Historically, the typical TMDL has been developed as a wasteload allocation, considering a particular waterbody segment, for a particular point source, to support setting effluent limitations. In order to address the combined cumulative impacts of all sources, broad watershed-based TMDLs are now being developed.

The TMDL process is linked to all other State water quality activities. Water quality impairments are identified through monitoring and assessment. Watershed-based investigations result in source identification and TMDL development. TMDLs form links between water quality standards and point and nonpoint source controls. Where TMDLs are established, they constitute the basis for NPDES permits and for strategies to reduce nonpoint source pollution. The effectiveness and adequacy of applied controls are evaluated through continued monitoring and assessment. For more information on TMDL development and for listings of completed TMDLs, please visit our web site at www.scdhec.net/water.

Antidegradation Implementation

The State's Antidegradation Policy as part of S.C. Regulation 61-68 is represented by a three-tiered approach to maintaining and protecting various levels of water quality and uses; streams included on the 303(d) list are addressed under Tier 1. Tier 1 antidegradation policies apply to all waters of the State and require that existing uses and the minimum level of water quality for those uses be maintained and protected. Tier 2 policies apply to high water quality where the water quality exceeds the mandatory minimum levels to support the Clean Water Act's goals of propagation of fish, shellfish, wildlife, and recreation in and on the water. The Department considers all the waters of the State as high quality waters. Tier 3 policies apply to the maintenance of water quality in waters which constitute an Outstanding National Resource Water and do not allow for any permanent permitted dischargers. Outstanding Resource Waters of the State are provided a higher level of protection than Tier 2, but do not meet the requirements of Tier 3.

The antidegradation rules will be implemented for Tier 1 protection when applying narrative standards included in Regulation 61-68 as follows: if nutrient loadings caused a waterbody to be included on the 303(d) list, then the Department will not allow a permitted net increase of loading for the appropriate nutrient(s) until such time as a TMDL is developed for the waterbody. In addition, Tier 1 protection will be implemented when applying numeric standards included in Regulation 61-68 for human health, aquatic life, and organoleptic protection as follows: if a waterbody has been affected by a parameter of concern causing it to be on the 303(d) list, then the Department will not allow a permitted net increase of loading for the parameter of concern unless the concentration will not contribute to a violation of water quality standards. Maintenance of current levels will be achieved by reallocation of existing total loads or by meeting applicable water quality standards at the end-of-pipe. No discharge will be allowed to cause or contribute to further degradation of a 303(d) listed waterbody. This no net increase will be achieved by reallocation of existing total load(s) or by meeting applicable water quality standard(s) at the end-of-pipe.

The Antidegradation Rules apply to both nonpoint source pollution and for point sources into impaired waters. Many activities contributing to nonpoint source pollution are controlled with voluntary measures. The Department implements permitting or certification programs for some of these activities and has the opportunity to ensure compliance with the Antidegradation Rules. The activities of primary concern are land development projects which are immediately adjacent to and discharge runoff or stormwater into impaired waters.

401 Water Quality Certification Program

If a Federal permit for a discharge into waters of the State, including wetlands, is required, the Department must issue Water Quality Certification pursuant to Section 401 of the Federal Clean Water Act. Certification is required for permits issued by the U.S. Army Corps of Engineers for construction in navigable waters and for deposition of dredged or fill material.

Regulation 61-101 presents administrative and technical guidance for the water quality certification program and requires SCDHEC to consider whether or not a project is water dependent; whether or not there are feasible alternatives which will have less adverse consequences on water quality and classified uses; the intended purpose of the project; and all potential water quality impacts of the project, both direct and indirect, over the life of the project. Any project with the potential to affect waters of the State must be conducted in such a manner to maintain the specified standards and classified and existing water uses.

As a routine part of the 401 Water Quality Certification review process, the waterbody in question is identified as impaired or not impaired according to the 303(d) list. If it is impaired, the parameter of concern is noted, along with any steps required to prevent further degradation of the water quality of that waterbody. In an effort to facilitate watershed restoration where appropriate, mitigation for unavoidable wetland impacts is encouraged in areas that improve 303(d) listed waters.

Stormwater Program

Stormwater discharges result from precipitation during rain events. Runoff washes pollutants associated with industrial activities (including construction activity), agricultural operations, and commercial and household sites directly into streams, or indirectly into drainage systems that eventually drain into streams. The SCDHEC Stormwater Permitting Program focuses on pollution prevention to reduce or eliminate stormwater pollution. The Department has general permitting authority for stormwater discharges associated with industrial activity, including construction. General permits SCR000000 and SCR100000 for industrial and construction activities, respectively, require permittees to develop and implement stormwater pollution prevention plans that establish best management practices to effectively reduce or eliminate the discharge of pollutants via stormwater runoff. The Stormwater and Agricultural Permitting Section is responsible for issuing NPDES stormwater permits to prevent degradation of water quality as well as for issuing sediment and erosion control permits for construction sites. SCDHEC's Office of Ocean and Coastal Resource Management manages the State sediment and erosion control in the coastal area.

Regulation 61-9 requires a compilation of all existing State water quality data with STORET data being used as a baseline. If analysis indicates a decrease in water quality then corrective measures must be taken. The permittee will identify all impaired water bodies in a Stormwater Management Plan (SWMP). In addition, existing pollution discharge control methods will be identified and incorporated into the SWMP. Procedures, processes, and methods to control the discharge of pollutants from the municipal separate storm sewer system (MS4) into impaired waterbodies and publicly owned lakes included on the 303(d) list will be described in the SWMP. The effectiveness of these controls will be assessed and necessary corrective measures, if any, shall be developed and implemented.

South Carolina Animal Feeding Operations Strategy

Among the general categories of pollution sources, agriculture ranks as the number one cause of stream and lake impairment nationwide. Many diseases can potentially be contracted from drinking water or coming into contact with waters contaminated with animal wastes. The Department uses SC Regulation 61-43: *Standards for the Permitting of Agricultural Animal Facilities* to address the permitting of animal feeding operations (AFOs). Implementing these regulations and their corresponding compliance efforts are a priority for the Department in order to reduce public health and environmental impacts from AFOs. There are currently no concentrated animal feeding operations (CAFOs) in operation in South Carolina, and approximately 2,000 AFOs. Using the Watershed Program cycle and the division of the State into five regions, AFOs will be monitored and inspected by region. The 303(d) list will be used to prioritize the inspections. After all the inspections have been made in a region, the Department will move to the next basin in the watershed cycle. The Department is continuing to work in cooperation and coordination with the US Department of Agriculture, the Natural Resources Conservation Service, the South Carolina

Department of Agriculture, the South Carolina Soil and Water Conservation Districts, and the Clemson Extension Service.

Sanitary Sewer Overflow Strategy

Sanitary sewers are designed to collect municipal and industrial wastewater, with the allowance for some acceptable level of infiltration and infow, and transport these flows to a treatment facility. When the sewer system is unable to carry these flows, the system becomes surcharged and an overflow will occur. Sanitary sewer overflows (SSOs) have existed since the introduction of separate sanitary sewers, and most are caused by inadequate operation, maintenance, and management of the collection system.

The SSO strategy addresses compliance and enforcement efforts by the Department to ensure compliance by publicly/privately owned treatment plants (PPOTWs) with the requirements of the statutes and their NPDES and ND permits. The Department has initiated a Sanitary Sewer Overflow Compliance and Enforcement Strategy to shift resources historically applied to treatment plant inspections to include evaluations of pump stations and collection systems. To assist evaluators in selecting candidate systems, staff will utilize the 303(d) list of impaired waters to identify waters impacted by fecal coliform or other appropriate pollutants and correlate those with collection systems with incidences of SSOs. The Department's Enforcement Referral Procedures Document will be used to determine when a PPOTW should be referred to enforcement for SSOs. The enforcement process allows for the Department to consider actions taken by the PPOTW such as: timely and proper notification, containment and mitigation of discharge, voluntarily conducting self evaluations, and requests for compliance assistance. The Department will take immediate action where it has been determined that SSOs have occurred and the PPOTW has not made timely and proper notification.

Referral Strategy for Effluent Violations

The Department has developed referral effluent violation guidelines to specifically address discharges into impaired waters. The goal of the referral guidelines is to reduce pollutant discharges into impaired waters in order to ultimately restore them to their full potential usage. To achieve this goal, enforcement actions are initiated earlier in an effort to improve the quality of waters which do not meet standards. If a stream is impaired by a pollutant and the permit limit for that pollutant is exceeded more than once in a running annual reporting period, formal enforcement action will be initiated against the discharger.

SCDHEC's Watershed Stewardship Programs

Public participation is an important component of the Department's Watershed Water Quality Management Program. Benefits to this interaction on the local level include improved public awareness about SCDHEC water programs, and increased local interest and participation in water quality improvement. Described below are some of the Department's water programs that encourage public interest and involvement in water quality.

Source Water Assessment Program

A safe, adequate source of drinking water is key to development of communities and the health of citizens. The Safe Drinking Water Act (SDWA) provides authority to protect sources of drinking water. As a result of the 1996 amendments to the SDWA, source water protection has become a national priority. States are required to develop a plan for assessment of source waters for all federally defined public groundwater and surface water systems.

The Source Water Assessment Program (SWAP) involves determining the boundaries of the areas that are the source of waters for public water systems. For groundwater systems, these areas are defined using groundwater flow models. For surface water systems, the 14-digit Hydrologic Unit Code watershed is the designated protection area (although certain areas within the basin will be segmented as being of greater vulnerability to contamination from overland flow, groundwater contributions to surface water, and direct spills into the surface water). Known and potential sources of contamination in the delineated area must be identified, and the inventoried sources evaluated to determine the susceptibility of public water systems to such contaminants. Assessments must be made available to the public.

Local involvement will be a critical factor in the success of the SWAP, and local government, citizen groups, environmental groups, water suppliers, and the Department must all work together to increase the general public's awareness of where drinking water comes from and how to better protect sources of drinking water. Implementation of source water protection activities will also occur at the local level, and local authorities may wish to base zoning and land-use planning on the source water assessments. The SWAP will be a key part of the Department's watershed management approach. To avoid duplication, information gathered from existing regulatory programs and/or watershed protection efforts will be utilized (e.g., ambient monitoring programs, TMDLs, etc.).

South Carolina Water Watch

South Carolina Water Watch is a unique effort to involve the public and local communities in water quality protection. The Water Watch program was developed to encourage South Carolina's citizens to become stewards of the State's lakes, rivers, streams, estuaries, and wetlands. Volunteers select a water resource on which to focus and perform activities aimed at protecting water quality, such as shoreline surveys, public education, and litter cleanups. The Water Watch coordinator assists participants with materials and training to help make projects successful. SCDHEC invites individuals, school groups, civic organizations, businesses, and local governments to learn about and protect the quality of our waterways by contacting the Water Watch coordinator at 803-898-4300.

Champions of the Environment

Champions of the Environment is a student recognition program that raises awareness of environmental issues. Nationally recognized for its innovative approach to environmental education, the program promotes hands-on learning by recognizing students working on exemplary environmental projects beyond the realm of the classroom. With scholarships and media coverage, Champions of the Environment encourages student initiative and self-esteem. The program promotes environmental awareness, leadership, conservation, creativity, and self-confidence through activities such as group projects, public speaking, and environmental research. Champions of the Environment is jointly sponsored by Dupont, International Paper, WIS-TV, and SCDHEC. For more information contact the Champions of the Environment coordinator at 803-898-4300.

Clean Water State Revolving Fund

Congress created the Clean Water State Revolving Fund (SRF) in 1987, to replace the §201 Construction Grants program. In doing so, 'state banks' were created to lend money for virtually any type of water pollution control infrastructure project. Project types include construction of wastewater treatment systems and nonpoint source pollution control. The interest rate on the loans is always below the current market rate. As repayments are made on the loans, funds are recycled to fund additional water protection projects. The vast majority of the SRF funds have been used for the construction of traditional municipal wastewater treatment systems. Because of its inherent flexibility, the SRF program is well suited to accommodate the watershed approach.

SRF loans are available to units of state, local, and regional government, and special purpose districts. South Carolina law prevents loans from being made directly to private organizations and individuals. Local governments such as cities and counties and other units of government such as Soil and Water Conservation Districts, Councils of Government, and Water and Sewer Districts are encouraged to apply for SRF loans for nonpoint source projects. Nonpoint source projects may include construction and maintenance of stormwater management facilities, establishment of a stormwater utility, purchase of land for wetlands and riparian zones, and implementation of source water protection assessments. For more information contact the State Revolving Fund coordinator at 803-898-4300.

Citizen-Based Watershed Stewardship Programs

Throughout the Pee Dee River Basin, water quality is a common interest among citizen groups. The issues and membership of these groups vary widely. Some of the citizen groups interested in water quality in the Pee Dee River Basin are described below.

The Lynches River Advisory Council

The Lynches River Advisory Council consists of a varied group of individuals interested in protecting the Lynches River including landowners and representatives of industry, state agencies, grass roots environmental groups, and local governments. The council was formed after a 54-mile segment of the river, from Rt. 15 in Bishopville to Lynches River County Park was designated as a State Scenic River in 1994. In 1997, the council published the Lynches River Management Plan which contains recommendations to address specific issues within the scenic river segment. The council is currently implementing the plan using a management program focused around three components: outreach/education, water quality, and recreation.

Winyah Bay Focus Area

Formed in 1992 under the aegis of the North American Plan, the Winyah Bay Focus Area Task Force was to quantify and qualify the significant habitats within the Winyah Bay area. This effort has resulted in the protection of 8,000 acres of private lands under conservation easements, the establishment of the Waccamaw National Wildlife Refuge, and the perpetual protection of 17,000 acres, including Sandy Island. The Task Force continues in its efforts to protect the Waccamaw River and Pee Dee River watersheds within the Focus Area's boundaries.

Waccamaw Waterwatch

The Waccamaw Waterwatchers are a group of high school students and teachers from Horry and Georgetown Counties interested in coastal water issues. Funded by a National Science Foundation grant awarded to Coastal Carolina University and a Clean Air Clean Water grant from the Wal-Mart Corporation, the group gets assistance from Coastal Carolina University's Environmental Quality Lab, as well as the Waccamaw Science and Math Hub. Their primary activity is monitoring water quality and biota along the rivers of the Pee Dee River Watershed.

Murrells Inlet 2007

In the small community of Murrells Inlet, residents and businesses ranked preservation of the inlet as their number one priority in order to maintain the ability to fish, shellfish harvest, or enjoy water-based recreation. In 1997, several civic groups joined in planning the inlet’s growth. The five goals they hope to achieve by 2007 include preservation of the creek, landscaping, boardwalking, community-wide signs, and maintenance dredging of the inlet.

Lynches River Basin Description

The ***Lynches River Basin*** encompasses 1,386.8 square miles with geographic regions that extend from the Piedmont to the Sandhills, and to the Upper and Lower Coastal Plains. The Lynches River Basin encompasses 17 watersheds and 887,524 acres, of which 45.0% is forested land, 30.3% is agricultural land, 16.8% is scrub/shrub land, 6.4% is forested wetland (swamp), 0.7% is urban land, 0.4% is barren land, 0.3% is water, and 0.1% is nonforested wetland (marsh). The urban land percentage is comprised chiefly of the City of Lake City. This predominantly rural area has approximately 1,624 stream miles and 1,310 acres of lake waters. The Lynches River originates in North Carolina and accepts drainage from Flat Creek, Fork Creek, the Little Lynches River, Sparrow Swamp, Big Swamp, and Lake Swamp before draining into the Pee Dee River.

Physiographic Regions

The State of South Carolina has been divided into six Major Land Resource Areas (MLRAs) by the USDA Soil Conservation Service. The MLRAs are physiographic regions that have soils, climate, water resources, and land uses in common. The physiographic regions that define the Lynches River Basin are as follows:

The **Piedmont** is an area of gently rolling to hilly slopes with narrow stream valleys dominated by forests, farms, and orchards; elevations range from 375 to 1,000 feet.

The **Sandhills** are an area of gently sloping to strongly sloping uplands with a predominance of sandy areas and scrub vegetation; elevations range from 250 to 450 feet.

The **Upper Coastal Plain** is an area of gentle slopes with increased dissection and moderate slopes in the northwestern section that contain the State's major farming areas; elevations range from 100 to 450 feet.

The **Lower Coastal Plain** is an area that is mostly nearly level and is dissected by many broad, shallow valleys with meandering stream channels; elevations range from 25 to 125 feet.

Land Use/Land Cover

General land use/land cover data for South Carolina were derived from SCDNR 1990 SPOT multispectral satellite images using image mapping software to inventory the State's land classifications, which are as follows.

Urban land is characterized by man-made structures and artificial surfaces related to industrial, commercial, and residential uses, as well as vegetated portions of urban areas.

Agricultural/Grass land is characterized by cropland, pasture, and orchards and may include some grass cover in urban, scrub/shrub, and forest areas.

Scrub/Shrub land is adapted from the western Rangeland classification to represent the "fallow" condition of the land (currently unused, yet vegetated), and is most commonly found in the dry Sandhills region including areas of farmland, sparse pines, regenerating forest lands, and recently harvested timber lands.

Forest land is characterized by deciduous and evergreen trees not including forests in wetland settings.

Forested Wetland (swampland) is the saturated bottomland, mostly hardwood forests that are primarily composed of wooded swamps occupying river floodplains and isolated low-lying wet areas, primarily located in the Coastal Plain.

Nonforested Wetland (marshland) is dependent on soil moisture to distinguish it from Scrub/Shrub since both classes contain grasses and low herbaceous cover; nonforested wetlands are most common along the coast and isolated freshwater areas found in the Coastal Plain.

Barren land is characterized by an unvegetated condition of the land, both natural (rock, beaches and unvegetated flats) and man-induced (rock quarries, mines, and areas cleared for construction in urban areas or clearcut forest areas).

Water (non-land) includes both fresh and tidal waters.

Soil Types

The dominant soil associations, or those soil series comprising, together, over 40% of the land area, were recorded for each watershed in percent descending order. The individual soil series for the Lynches River Basin are described as follows.

Alpin soils are well drained and excessively drained, sandy soils with a loamy or sandy subsoil.

Badin soils are moderately deep, well drained, moderately permeable, clayey soils that formed in material weathered from Carolina Slate or other fine grained rock, on ridgetops and side slopes.

Blaney soils are nearly level to strongly sloping, excessively drained and well drained soils, some sandy throughout and some with a loamy subsoil and a fragipan on coastal plains.

Blanton soils are excessively drained soils that have loamy subsoil or are sandy throughout.

Bonneau soils are deep, moderately well drained soils with loamy subsoil on ridges.

Candor soils are somewhat excessively drained soils that formed in sandy and loamy marine sediments on broad flats, narrow ridges, and side slopes.

Cantey soils are moderately well drained soils with a loamy surface layer and a clayey or loamy subsoil and poorly drained soils with a loamy surface layer and a clayey subsoil.

Cecil soils are deep, well drained, gently sloping to sloping soils that have red subsoil.

Chastain soils are poorly drained to well drained soils that are clayey or loamy throughout and are subject to flooding.

Foreston soils are moderately well drained soils that formed in loamy marine sediments in upland areas of the Coastal Plain, and on high ridges and slight rises within broad flats.

Fuquay soils are well drained, loamy and sandy soils with clayey or loamy subsoil.

Gilead soils are gently sloping to sloping, moderately well drained, moderately deep soils underlain by a compact, brittle substratum, in beds of unconsolidated sand and clay.

Goldsboro soils are moderately well to poorly drained soils with loamy subsoil on nearly level ridges and in shallow depressions.

Goldston soils are dominantly sloping to steep, well drained to excessively drained soils.

Lakeland soils are well drained, sandy soils with loamy subsoil and excessively drained soils.

Lynchburg soils are moderately well to poorly drained soils, with loamy subsoil, on nearly level ridges and in shallow depressions.

Noboco soils are well drained, sandy soils with a loamy or clayey subsoil.

Norfolk soils are deep, well drained soils, with loamy subsoil, nearly level and gently sloping elevated uplands.

Pacolet soils are well drained, moderately steep soils with clayey subsoil, moderately deep.

Rains soils are moderately well to poorly drained soils, with a loamy subsoil, on nearly level ridges and in shallow depressions.

Tatum soils are dominantly sloping to steep, well drained to excessively drained soils, with a loamy subsoil, moderately deep or shallow to weathered rock.

Troup soils are well drained, sandy soils with loamy subsoil and excessively drained soils.

Vaucluse soils are well drained, loamy and sandy soils with clayey or loamy subsoil.

Wagram soils are well drained to very poorly drained, depressional to nearly level and gently sloping soils with a loamy to sandy surface layer and a clayey to loamy subsoil.

Whitestone soils are deep and very deep, moderately well drained soils on Piedmont uplands, and formed in weathered triassic materials.

Slope and Erodibility

The definition of soil erodibility differs from that of soil erosion. Soil erosion may be more influenced by slope, rainstorm characteristics, cover, and land management than by soil properties. Soil erodibility refers to the properties of the soil itself, which cause it to erode more or less easily than others when all other factors are constant.

The soil erodibility factor, K, is the rate of soil loss per erosion index unit as measured on a unit plot, and represents an average value for a given soil reflecting the combined effects of all the soil properties that significantly influence the ease of soil erosion by rainfall and runoff if not protected. The K values closer to 1.0 represent higher soil erodibility and a greater need for best management practices to minimize erosion and contain those sediments that do erode. The range of K-factor values in the Lynches River Basin is from 0.10 to 0.38.

Fish Consumption Advisory

At the time of publication, a fish consumption advisory issued by SCDHEC is in effect for the **Lynches River (from U.S. Hwy. 15 to the Pee Dee River)** advising people to limit the amount of some types of fish consumed from these waters. Fish consumption advisories are updated annually in March. For background information and the most current advisories please visit the Bureau of Water homepage at http://www.scdhec.net/water and click on "Advisories". For more information or a hard copy of the advisories, call SCDHEC's Division of Health Hazard Evaluation toll-free at (888) 849-7241.

Climate

Normal yearly rainfall in the Lynches River Basin area is 46.21 inches, according to the S.C. historic climatological record. Data compiled from National Weather Service stations in Kershaw, Bishopville, and Lake City were used to determine the general climate information for this portion of the State. The highest level of rainfall occurs in the summer with 14.67 inches; 9.34, 10.74, and 11.46 inches of rain falling in the fall, winter, and spring, respectively. The average annual daily temperature is 64.1°F. Summer temperatures average 79.8°F and fall, winter, and spring temperatures are 64.8°F, 47.5°F, and 64.4°F, respectively.

Watershed Evaluations

03040202-010

(Lynches River)

General Description

Watershed 03040202-010 (formerly 03040202-015) is located in Lancaster and Chesterfield Counties and consists primarily of the ***Lynches River*** and its tributaries from where it enters South Carolina to Hills Creek. The watershed occupies 15,970 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Tatum-Georgeville-Goldston-Badin series. The erodibility of the soil (K) averages 0.34; the slope of the terrain averages 16%, with a range of 2-45%. Land use/land cover in the watershed includes: 59.7% forested land, 28.8% agricultural land, 9.4% scrub/shrub land, 2.0% barren land, and 0.1% urban land.

The Lynches River originates in North Carolina, and accepts drainage also originating in North Carolina including Polecat Creek (Otter Creek, Silver Run), Buffalo Creek (Raccoon Branch Creek), and Dead Pine Creek. There are a few ponds (totaling 14.4 acres) and a total of 41.4 stream miles in this watershed, all classified FW.

Water Quality

Station #	Type	Class	Description
(PD-113)	P	FW	LYNCHES RIVER AT SC 9 WEST OF PAGELAND

Lynches River (PD-113) - This station is physically located in 03040202-030, but reflects the influence of this watershed drainage. Aquatic life uses are fully supported; however, endrin was detected in the water column in 1996. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Growth Potential

There is a low potential for growth in this watershed.

03040202-020

(Hills Creek)

General Description

Watershed 03040202-020 **(incorporating (03040105-080)** is located in Chesterfield County and consists primarily of ***Hills Creek*** and its tributaries. The watershed occupies 15,443 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Tatum-Whitestone-Georgeville series. The erodibility of the soil (K) averages 0.38; the slope of the terrain averages 9%, with a range of 0-25%. Land use/land cover in the watershed includes: 47.6% agricultural land, 32.7% forested land, 12.4% scrub/shrub land, 3.9% urban land, 3.0% barren land, and 0.4% water.

Hills Creek originates near the Town of Pageland and accepts the drainage of Mangum Branch, Cow Head Branch, and Conway Branch before flowing into the Lynches River. Mill Creek originates near the headwaters of Mangum Creek and flows into North Carolina. There are several ponds (totaling 58.6 acres) in this watershed and a total of 50.2 stream miles, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-672	BIO	FW	HILLS CREEK AT S-13-105
PD-333	S	FW	HILLS CREEK AT S-13-105

Hills Creek* -** There are two monitoring sites along Hills Creek. Aquatic life uses are partially supported at the upstream site ***(PD-672) based on macroinvertebrate community data. At the downstream site ***(PD-333)***, aquatic life uses are fully supported, but recreational uses are not supported due to fecal coliform bacteria excursions.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
HILLS CREEK TOWN OF PAGELAND/NORTHWEST PLANT PIPE #: 001 FLOW: 0.3 WQL FOR DO,TRC,NH3N,BOD5	SC0021504 MINOR DOMESTIC WATER QUALITY

Growth Potential

There is a low to moderate potential for growth in this watershed, which includes a portion of the Town of Pageland. The northeast corner of the watershed is the edge of the Charlotte Metroplex and future growth is expected. Pageland and the area immediately outside of the town have water and sewer service. In addition, water service has recently been extended to the Lynches River Industrial Park, located along the S.C. Hwy. 151/U.S. Hwy. 601 corridor. Wal-Mart has constructed a food distribution center in the park and is currently expanding it, and spillover development from the park is expected. The section of U.S. Hwy. 601 north to Charlotte is scheduled for widening in the next five years to four lanes.

03040202-030

(Lynches River)

General Description

Watershed 03040202-030 is located in Lancaster and Chesterfield Counties and consists primarily of the ***Lynches River*** and its tributaries from Hills Creek to Flat Creek. The watershed occupies 31,911 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Goldston-Pacolet-Cecil-Badin-Tatum series. The erodibility of the soil (K) averages 0.26; the slope of the terrain averages 14%, with a range of 2-25%. Land use/land cover in the watershed includes: 70.7% forested land, 21.5% agricultural land, 6.7% scrub/shrub land, 0.5% barren land, 0.4% urban land, and 0.2% water.

This section of the Lynches River accepts drainage from its upper reach, together with Wildcat Creek (North Branch Wildcat Creek, South Branch Wildcat Creek, Sutton Branch, Long Branch), Turkey Creek, Arant Branch, Shop Branch, Belk Branch (Horton Spring Branch), Cedar Falls Branch, and Rocky Branch. There are a few ponds (totaling 15.6 acres) and a total of 76.8 stream miles in this watershed, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-113	P	FW	LYNCHES RIVER AT SC 9 WEST OF PAGELAND
PD-179	S	FW	N. BRANCH WILDCAT CREEK AT S-29-39 1 MILE S OF TRADESVILLE
PD-679	BIO	FW	NORTH BRANCH WILDCAT CREEK AT SR 178
PD-180	S	FW	S. BRANCH WILDCAT CREEK AT S-29-39 2 MILE S OF TRADESVILLE

Lynches River (PD-113) - This station also reflects the influence of drainage from the upstream watershed 03040202-010. Aquatic life uses are fully supported; however, endrin was detected in the water column in 1996. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

North Branch Wildcat Creek* -** There are two monitoring sites along North Branch Wildcat Creek. At the upstream site ***(PD-179), aquatic life uses are fully supported. There is a significant decreasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are not supported due to fecal coliform bacteria excursions. At the downstream site ***(PD-679)***, aquatic life uses are partially supported based on macroinvertebrate community data.

South Branch Wildcat Creek (PD-180) - Aquatic life uses are fully supported; however, there is a significant increasing trend in turbidity. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
LYNCHES RIVER TRIBUTARY BECKER HANSON AGGREG./JEFFERSON PIPE #: 001 FLOW: 1.5	SCG730062 MINOR INDUSTRIAL EFFLUENT
NORTH BRANCH WILDCAT CREEK BUFORD SCHOOL/LANCASTER PIPE #: 001 FLOW: 0.035 WQL FOR DO,TRC,NH3N,BOD5	SC0030210 MINOR DOMESTIC WATER QUALITY

Nonpoint Source Management Program

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
BECKER MINERALS, INC. JEFFERSON PLANT	0093-25 GRANITE

Growth Potential

There is a low potential for growth in this watershed. U.S. Hwy. 601 crosses the watershed, and is scheduled for widening in the next five years to four lanes. The remainder of the watershed is predominately rural with forested land and rangeland.

03040202-040

(Flat Creek)

General Description

Watershed 03040202-040 is located in Lancaster County and consists primarily of ***Flat Creek*** and its tributaries. The watershed occupies 31,017 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Blanton-Goldston-Badin series. The erodibility of the soil (K) averages 0.12; the slope of the terrain averages 12%, with a range of 2-45%. Land use/land cover in the watershed includes: 84.7% forested land, 10.0% agricultural land, 4.4% scrub/shrub land, 0.5% barren land, 0.2% urban land, and 0.2% water.

Flat Creek accepts drainage from Baker Creek (Ellis Creek), Childers Creek (Mine Branch), and Big Double Branch (Little Double Branch) in the upper portion of the watershed. Further downstream, Lick Creek flows into Flat Creek followed by Lick Run (Mill Branch) and Dry Creek. The Flat Creek Watershed flows into the Lynches River. There are a few ponds (totaling 16.5 acres) and a total of 79.1 stream miles in this watershed, all classified FW. An additional natural resource is the Heritage Trust Preserve surrounding Flat Creek and a tributary downstream from Lick Creek.

Water Quality

Station #	Type	Class	Description
PD-182	BIO	FW	FLAT CREEK AT SR 601
PD-342	W	FW	FLAT CREEK AT S-29-123

Flat Creek - There are two monitoring sites along Flat Creek. Aquatic life uses are partially supported at the upstream site ***(PD-182)*** based on macroinvertebrate community data. At the downstream site ***(PD-342)***, aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are partially supported due to fecal coliform bacteria excursions.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
CHILDERS CREEK MINERAL MINING CORP. PIPE: 001 FLOW: M/R	SCG730049 MINOR INDUSTRIAL EFFLUENT

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
MINING ROAD C&D LANDFILL CONSTRUCTION	292440-1201 --------

Growth Potential

There is a low potential for growth in this predominantly rural watershed.

03040202-050

(Lynches River)

General Description

Watershed 03040202-050 (formerly 03040202-060) is located in Lancaster, Kershaw, and Chesterfield Counties and consists primarily of the ***Lynches River*** and its tributaries from Flat Creek to the Little Lynches River. The watershed occupies 118,509 acres of the Piedmont and Sandhills regions of South Carolina. The predominant soil types consist of an association of the Alpin-Lakeland-Candor-Troup-Blanton series. The erodibility of the soil (K) averages 0.10; the slope of the terrain averages 8%, with a range of 0-25%. Land use/land cover in the watershed includes: 64.2% forested land, 22.1% agricultural land, 9.2% scrub/shrub land, 2.5% forested wetland, 1.0% barren land, 0.5% urban land, and 0.5% water.

This section of the Lynches River accepts drainage from its upper reaches, together with the Flat Creek Watershed, the Fork Creek Watershed, Rocky Creek (Long Branch, Little Rocky Creek, Fox Branch, Sycamore Pond), Buffalo Creek (Little Buffalo Creek, South Buffalo Creek, Raley Millpond), Big Sandy Creek (Sevenmile Branch, Oxpen Branch), and Little Sandy Creek. Further downstream, Jumping Gully (Horton Pond) enters the river followed by Swift Creek (North Prong, Rocky Prong, South Prong), Red Oak Camp Creek, Cedar Creek (McGee Branch, Park Pond, Sexton Pond), Hammond Branch (Beard Branch), and Blackwell Mill Stream. The Carolina Sandhills National Wildlife Refuge extends across Big Sandy Creek down to McGee Branch. The Sand Hills State Forest extends across the lower portion of the watershed below the wildlife refuge. There are numerous ponds (totaling 361.9 acres) in this watershed and a total of 208.6 stream miles, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-001	W/BIO	FW	LYNCHES RIVER AT SC 265
PD-066	S	FW	LYNCHES RIVER AT S-28-42
PD-009	S	FW	LYNCHES RIVER AT US 1
(PD-080)	P	FW	LYNCHES RIVER AT S-28-15 4.5 MILES SE BETHUNE

Lynches River - There are four monitoring sites along this section of the Lynches River. At the furthest upstream site ***(PD-001)***, aquatic life and recreational uses are fully supported. At the next site downstream ***(PD-066)***, aquatic life uses are not supported due to occurrences of copper in excess of the aquatic life acute standards, compounded by a significant increasing trend in total phosphorus concentration. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions. Aquatic life uses are fully supported at the next site downstream ***(PD-009)***; however, a very high concentration of cadmium was measured in 1998. A significant decreasing trend in total phosphorus concentration suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Station ***PD-080*** is physically located in the Lynches River watershed 03040202-090, but also reflects the influence from this watershed drainage. Aquatic life uses are not supported at ***PD-080*** due to occurrences of zinc in excess of the aquatic life acute standards, including a very high concentration of zinc measured in 1994. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
LYNCHES RIVER	SC0001341
BBA NONWOVENS SIMPSONVILLE INC.	MAJOR INDUSTRIAL
PIPE #: 001 FLOW: 2.451	WATER QUALITY
WQL FOR TRC,BOD5	

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME	***PERMIT #***
FACILITY TYPE	***STATUS***
INDUSTRIAL LANDFILL	IWP-169
INDUSTRIAL	--------

Mining Activities

MINING COMPANY	***PERMIT #***
MINE NAME	***MINERAL***
APAC-CAROLINA, INC.	0082-25
ASPHALT PLANT #10	SAND
BREWER GOLD CO.	0671-25
BREWER MINE	GOLD ORE
WALTER GRIFFIN.	1145-55
GRIFFIN MINE NO.3	SAND/GRAVEL

Water Supply

WATER USER (TYPE)	***REGULATED CAPACITY (MGD)***
STREAM	***PUMPING CAPACITY (MGD)***
TOWN OF JEFFERSON (M)	1.70
LYNCHES RIVER	3.40

Growth Potential

There is a low potential for growth in this watershed, which contains portions of the Towns of Bethune and McBee. S.C. Hwy. 151, which runs between the Towns of Jefferson and McBee, is currently under construction expanding the road to four lanes. The Town of McBee has water service and may extend it along S.C. Hwy. 151 to the north of town. McBee also has a limited sewer system which serves some of the industry in area. The area along S.C. Hwy. 265, where it crosses at the top of the watershed, has water service extended by the Town of Jefferson, but limited development is expected due to low lying lands. The remainder of the watershed is rural with agricultural and timberland uses.

03040202-060

(Fork Creek)

General Description

Watershed 03040202-060 (formerly 03040202-050) is located in Chesterfield County and consists primarily of ***Fork Creek*** and its tributaries. The watershed occupies 26,764 acres of the Sandhills region of South Carolina. The predominant soil types consist of an association of the Blaney-Candor-Vaucluse-Gilead series. The erodibility of the soil (K) averages 0.12; the slope of the terrain averages 7%, with a range of 1-15%. Land use/land cover in the watershed includes: 43.5% forested land, 36.5% agricultural land, 14.1% scrub/shrub land, 4.9% barren land, 0.7% water, and 0.3% urban land.

Fork Creek accepts drainage from Canal Branch (Shady Slash Branch), Gum Branch (Dry Branch, Clark Mill Branch), Mill Branch, Meeting House Branch, and Joes Branch before joining Little Fork Creek. Reedy Fork flows into Little Fork Creek to form Plyer Pond. Further downstream, Little Fork Creek flows through Lake Terry and accepts drainage from Mose Branch, Canal Branch, and Brazzell Branch. The Fork Creek Watershed flows into the Lynches River. There are a total of 58.0 stream miles and several ponds (totaling 85.1) in this watershed, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-647	BIO	FW	LITTLE FORK CREEK AT COUNTY ROAD 39
PD-215	S	FW	LITTLE FORK CREEK AT S-13-265 1.5 MILES SW JEFFERSON
PD-067	S	FW	FORK CREEK AT SC 151
PD-068	S	FW	FORK CREEK AT UNNUMBERED ROAD 1.5 MILES SW JEFFERSON

Little Fork Creek - There are two monitoring sites along Little Fork Creek. At the upstream site ***(PD-647)***, aquatic life uses are fully supported based on macroinvertebrate community data. At the downstream site ***(PD-215)***, aquatic life uses are not supported due to occurrences of copper in excess of the aquatic life acute standards, including high concentrations of copper measured in 1994 and 1998. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Fork Creek - There are two monitoring sites along Fork Creek. At the upstream site ***(PD-067)***, aquatic life uses are fully supported; however, there are significant increasing trends in five-day biochemical oxygen demand and turbidity. At the downstream site ***(PD-068)***, aquatic life uses are not supported due to occurrences of copper in excess of the aquatic life acute standards, including a very high concentration of copper measured in 1994. In addition, there was a significant increasing trend in turbidity. Recreational uses are not supported at either site due to fecal coliform bacteria excursions.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM FACILITY NAME PERMITTED FLOW @ PIPE (MGD) COMMENT	NPDES# TYPE LIMITATION
FORK CREEK CLEVELAND CAROKNIT PLT PIPE #: 001 FLOW: 0.720 WQL FOR TRC,NH3N,BOD5	SC0002500 MAJOR INDUSTRIAL WATER QUALITY
BRAZZELL BRANCH TOWN OF JEFFERSON WWTP PIPE #: 001 FLOW: 0.15 WQL FOR TRC,NH3N,BOD5	SC0024767 MINOR DOMESTIC WATER QUALITY
BRAZZELL BRANCH TOWN OF JEFFERSON WTP PIPE #: 001 FLOW: M/R WQL FOR TRC	SCG645015 MINOR DOMESTIC WATER QUALITY
LITTLE FORK CREEK BREWER GOLD CO. PIPE #: 001 FLOW: 0.864 WQL FOR TRC,NH3N,BOD5	SC0040657 MINOR INDUSTRIAL WATER QUALITY

Nonpoint Source Management Program

Mining Activities

MINING COMPANY MINE NAME	PERMIT # MINERAL
MARTIN MARIETTA MATERIALS CHESTERFIELD QUARRY	1062-25 GRANITE
BREWER SAND CO., INC. BREWER SAND PIT #2	0271-25 SAND

Water Supply

WATER USER (TYPE) STREAM	REGULATED CAPACITY (MGD) PUMPING CAPACITY (MGD)
TOWN OF PAGELAND (M) LAKE TERRY	1.40 2.90

Growth Potential

There is a low to moderate potential for growth in this watershed, which contains the Town of Jefferson and is adjacent to the Town of Pageland. The watershed is bisected by S.C. Hwy. 151, which has recently been widened to four lanes and a bipass around Jefferson has been completed. S.C. Hwy. 151 is a major travel corridor from Charlotte to Florence and Myrtle Beach, and additional commercial and industrial development is expected along this route. There is no sewer service in the watershed, but water service is provided for Jefferson and the area immediately surrounding it, along with a well water line running from Lake Terry to Pageland. Water service may be extended along S.C. Hwy 151 between Pageland and Jefferson, which could encourage growth.

03040202-070

(Little Lynches River)

General Description

Watershed 03040202-070 is located in Lancaster and Kershaw Counties and consists primarily of the ***Little Lynches River*** and its tributaries from its origin to Mill Creek. The watershed occupies 86,935 acres of the Piedmont and Sandhills regions of South Carolina. The predominant soil types consist of an association of the Lakeland-Blanton-Wagram-Goldston series. The erodibility of the soil (K) averages 0.11; the slope of the terrain averages 12%, with a range of 0-45%. Land use/land cover in the watershed includes: 75.0% forested land, 15.6% agricultural land, 6.0% scrub/shrub land, 2.6% forested wetland, 0.3% water, 0.3% barren land, and 0.2% urban land.

Baskins Creek (Lyles Branch, Falls Branch, Bend Creek) is joined by Blackmon Branch to form the headwaters of the Little Lynches River. The Little Lynches River accepts drainage from Horton Creek (Little Lynches Creek, Sunrise Lake, Beckham Branch, Mobley Branch), Mill Creek, Camp Branch, Todds Branch, Haile Gold Mine Creek (Ledbetter Reservoir), and Neds Creek. Hanging Rock Creek (Lick Creek) flows past the City of Kershaw to join the Little Lynches River downstream of Neds Creek, followed by Gates Ford Branch and Shirley Creek. There are several ponds (totaling 134.0 acres) in this watershed and a total of 181.9 stream miles, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-640	BIO	FW	LITTLE LYNCHES CREEK AT S-29-88
PD-335	S	FW	HORTON CREEK AT S-29-95
PD-005	S	FW	TODDS BRANCH AT S-29-564 1.5 MILES NE OF KERSHAW
PD-006	P	FW	LITTLE LYNCHES RIVER AT US 601 2 MILES NE KERSHAW
PD-334	S	FW	HAILE GOLD MINE CREEK AT S-29-188
PD-632	BIO	FW	LITTLE LYNCHES RIVER AT SC 157
PD-109	P	FW	LITTLE LYNCHES RIVER AT SC 341, 4 MILES SE OF KERSHAW
(PD-343)	W	FW	LITTLE LYNCHES RIVER AT S-28-42
PD-329	S	FW	LICK CREEK AT S-29-13 ABOVE KERSHAW PLANT
PD-669	BIO	FW	HANGING ROCK CREEK AT SR 770
PD-328	S	FW	HANGING ROCK CREEK OFF S-29-84 1.6 MILES S OF KERSHAW

Little Lynches Creek (PD-640) - Aquatic life uses are partially supported based on macroinvertebrate community data.

Horton Creek (PD-335) - Aquatic life uses are fully supported, but recreational uses are not supported due to fecal coliform bacteria excursions.

Todds Branch (PD-005) - Aquatic life uses are fully supported. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are not supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Little Lynches River - There are three monitoring sites along this section of the Little Lynches River. Aquatic life uses are fully supported at the furthest upstream site ***(PD-006)***; however, there was a very high concentration of zinc measured in 1995 and a significant increasing trend in turbidity. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand, total phosphorus concentration, and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are partially supported due to fecal coliform bacteria excursions. At the next site downstream ***(PD-632)***, aquatic life uses are fully supported based on macroinvertebrate community data.

Aquatic life uses are fully supported at the downstream site ***(PD-109)***; however, there is a significant increasing trend in turbidity. A significant increasing trend in dissolved oxygen concentration suggests improving conditions for this parameter. A very high concentration of chromium was measured in the 1997 sediment sample, and P,P'DDE (a metabolite of DDT) was detected in the 1994 and 1998 samples. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are fully supported.

Station ***PD-343*** is physically located in the lower Little Lynches River watershed 03040202-080, but also reflects the influence from this watershed drainage. Aquatic life uses are fully supported at ***PD-343***, but recreational uses are partially supported due to fecal coliform bacteria excursions.

Haile Gold Mine Creek (PD-334) - Aquatic life uses are not supported due to pH excursions. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentration suggest improving conditions for these parameters. In sediment, a high concentration of mercury was measured in the 1995 sample. Recreational uses are fully supported.

Lick Creek (PD-329) - Aquatic life uses are fully supported. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are not supported due to fecal coliform bacteria excursions.

Hanging Rock Creek - There are two monitoring sites along Hanging Rock Creek. Aquatic life uses are partially supported at the upstream site ***(PD-669)*** based on macroinvertebrate community data. Aquatic life uses are fully supported at the downstream site ***(PD-328)***. A significant increasing trend in dissolved oxygen and a significant decreasing trend in five-day biochemical oxygen demand suggest improving conditions for these parameters. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM FACILITY NAME	NPDES# TYPE

PERMITTED FLOW @ PIPE (MGD) ***COMMENT***	***LIMITATION***
BECKHAM BRANCH TOWN OF HEATH SPRINGS/WWTP PIPE #: 001 FLOW: 0.075 WQL FOR DO,TRC,NH3N	SC0040118 MINOR DOMESTIC WATER QUALITY
BECKHAM BRANCH TRIBUTARY HEATH SPRINGS ELEMENTARY PIPE #: 001 FLOW: 0.012 WQL FOR DO,TRC,NH3N	SC0035301 MINOR DOMESTIC WATER QUALITY
HAILE GOLD MINE CREEK HAILE MINING VENTURE PIPE #: 001 FLOW: M/R PIPE #: 002 FLOW: M/R	SC0040479 MINOR INDUSTRIAL WQL FOR TRC EFFLUENT
HANGING ROCK CREEK TOWN OF KERSHAW WTP PIPE #: 001 FLOW: M/R WQL FOR TRC	SC0041050 MINOR DOMESTIC WATER QUALITY
HORTON CREEK TRIBUTARY ANDREW JACKSON HIGH SCHOOL PIPE #: 001 FLOW: 0.025 WQL FOR DO,TRC,NH3N	SC0030198 MINOR DOMESTIC WATER QUALITY
LICK CREEK TOWN OF KERSHAW WWTP PIPE #: 001 FLOW: 1.00 WQL FOR DO,TRC,NH3N	SC0025798 MAJOR DOMESTIC WATER QUALITY

Nonpoint Source Management Program

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
JIM LINEBERG GRADING & PAVING PARKER/BLACKWELL PIT	0440-57 SAND
PIEDMONT MINING CO., INC. HAILE MINE	0601-57 GOLD ORE
MINERAL MINING CORP. HILLTOP MINE	0214-57 SERICITE
BREWER GOLD CO. SPRINGS PROJECT MINE	0933-57 GOLD ORE

Water Supply

WATER USER (TYPE) ***STREAM***		***REGULATED CAPACITY (MGD)*** ***PUMPING CAPACITY (MGD)***
TOWN OF KERSHAW (M)	0.80	

LICK CREEK	2.30

Growth Potential

There is a low to moderate potential for growth in this watershed, which contains the Towns of Kershaw and Heath Springs. A rail line connects the Town of Kershaw to the Cities of Lancaster and Camden along U.S. Hwy 521, and may provide some future growth.

03040202-080

(Little Lynches River)

General Description

Watershed 03040202-080 is located in Kershaw County and consists primarily of the ***Little Lynches River*** and its tributaries from Mill Creek to its confluence with the Lynches River. The watershed occupies 39,784 acres of the Sandhills region of South Carolina. The predominant soil types consist of an association of the Lakeland-Wagram Blanton series. The erodibility of the soil (K) averages 0.10; the slope of the terrain averages 7%, with a range of 0-25%. Land use/land cover in the watershed includes: 71.3% forested land, 15.9% agricultural land, 7.1% scrub/shrub land, 5.4% forested wetland, 0.2% water, and 0.1% barren land.

This section of the Little Lynches River accepts drainage from its upstream reach, together with Mill Creek (Bakers Millpond), Beaver Dam Creek, and Bell Branch. The Little Lynches River Watershed flows into the Lynches River. There are a total of 56.9 stream miles and several ponds (totaling 37.9) in this watershed, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-343	W	FW	LITTLE LYNCHES RIVER AT S-28-42
PD-344	W	FW	LITTLE LYNCHES RIVER AT SC 341, 3.5 MILES SE OF BETHUNE
PD-678	BIO	FW	BEAVER DAM CREEK AT SR 59

Little Lynches River - There are two monitoring sites along this section of the Little Lynches River. Aquatic life uses are fully supported at the upstream site ***(PD-343)***, but recreational uses are partially supported due to fecal coliform bacteria excursions. Station ***PD-343*** is physically located in this watershed, but also reflects the influence of drainage from upstream watershed 03040202-070.

Aquatic life uses are fully supported at the downstream site ***(PD-344)***. This is a blackwater system, characterized by naturally low pH. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Beaver Dam Creek (PD-678) - Aquatic life uses are fully supported based on macroinvertebrate community data.

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME	***PERMIT #***
FACILITY TYPE	***STATUS***
BETHUNE DUMP	---------
MUNICIPAL	CLOSED

Growth Potential

There is a low potential for growth in this watershed, which contains a portion of the Town of Bethune.

03040202-090

(Lynches River)

General Description

Watershed 03040202-090 is located in Lee, Darlington, Florence, Sumter, Chesterfield, and Kershaw Counties and consists primarily of the ***Lynches River*** and its tributaries from the Little Lynches River to Sparrow Swamp. The watershed occupies 126,853 acres of the Sandhills and Upper and Lower Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Alpin-Rains-Chastain-Noboco-Lynchburg series. The erodibility of the soil (K) averages 0.17; the slope of the terrain averages 3%, with a range of 0-15%. Land use/land cover in the watershed includes: 32.4% agricultural land, 30.0% forested land, 23.1% scrub/shrub land, 12.9% forested wetland (swamp), 0.7% water, 0.6% urban land, and 0.3% nonforested wetland (marsh).

This portion of the Lynches River accepts drainage from its upper reaches, together with Turkey Creek, Merchants Mill Creek, and Bells Branch. The river then accepts drainage from Cousar Branch near the City of Bishopville and Lee State Park followed by Mill Branch, another Mill Branch, Rose Branch, and Back Swamp. Further downstream, another Back Swamp drains into the river followed by Polecat Branch (Mill Bay). The Lynches River State Park is located near the confluence of the Lynches River and Sparrow Swamp. There are several ponds (totaling 159.3 acres) in this watershed and a total of 200.2 stream miles, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-080	P	FW	LYNCHES RIVER AT S-28-15 4.5 MILES SE BETHUNE
PD-071	P	FW	LYNCHES RIVER AT US 15/SC 34
PD-112	S	FW	COUSAR BRANCH 1/4 MILES BELOW BISHOPVILLE FINISHING CO
PD-364	P/BIO	FW	LYNCHES RIVER AT US 401
PD-319	P	FW	LYNCHES RIVER AT SC 403
PD-093	P	FW	LYNCHES RIVER AT S-21-55

Lynches River - There are five monitoring sites along this section of the Lynches River and recreational uses are fully supported at all sites. At the furthest upstream site ***(PD-080)***, aquatic life uses are not supported due to occurrences of zinc in excess of the aquatic life acute standards, including a very high concentration of zinc measured in 1994. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Station ***PD-080*** is physically located in this watershed, but also reflects the influence of drainage from upstream watershed 03040202-050.

At the next site downstream ***(PD-071)***, aquatic life uses are fully supported; however, there is a significant increasing trend in turbidity. There was also a very high concentration of zinc measured in 1995 and a very high concentration of chromium measured in 1996. There is a significant increasing trend in pH. This is a blackwater system, characterized by naturally low pH. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. A significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter. Further downstream ***(PD-364)***, aquatic life uses are fully supported based on macroinvertebrate community data. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters.

Aquatic life uses are not supported at ***PD-319*** due to occurrences of copper in excess of the aquatic life acute standards, compounded by a significant increasing trend in turbidity. There was also a very high concentration of mercury measured in 1995. At the furthest downstream site ***(PD-093)***, aquatic life uses are not supported due to occurrences of copper in excess of the aquatic life acute standards, compounded by a very high concentration of zinc measured in 1996. A significant decreasing trend in total nitrogen concentration suggests improving conditions for this parameter.

Cousar Branch (PD-112) - Aquatic life uses are partially supported due to pH excursions from groundwater loading. There is a significant decreasing trend in pH. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters. Recreational uses are partially supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Lee State Park Lake - Aquatic herbicides were used from 1989-1992 and again in 1994 and 1995 to control aquatic plants and provide access for swimming and boating. The lake will be treated again in 2000.

A fish consumption advisory has been issued by the Department for mercury and includes a portion of the Lynches River within this watershed (see advisory p.35).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
LYNCHES RIVER	SC0035378
CITY OF BISHOPVILLE WWTP	MAJOR DOMESTIC
PIPE #: 001 FLOW: 2.5	WATER QUALITY
WQL FOR TRC	
LYNCHES RIVER	SC0042676
TOWN OF LYNCHBURG WWTP	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.107	EFFLUENT
LYNCHES RIVER	SC0043702

TOWN OF LAMAR WWTP	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.25	EFFLUENT
PIPE #: 001 FLOW: 0.65 (PROPOSED)	EFFLUENT
LYNCHES RIVER	SC0040363
NATIONAL DYE WORKS	MINOR INDUSTRIAL
PIPE #: 001 FLOW: 0.054	EFFLUENT
LYNCHES RIVER	SC0001490
REEVES BROS./BISHOPVILLE	MAJOR INDUSTRIAL
PIPE #: 001 FLOW: 2.5	WATER QUALITY
WQL FOR TRC	
LYNCHES RIVER	PROPOSED
SUMTER COUNTY	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.2	EFFLUENT
PIPE #: 001 FLOW: 0.5	EFFLUENT
BACK SWAMP	SC645019
TOWN OF LYNCHBURG WTP	MIN0R INDUSTRIAL
PIPE #: 001 FLOW: M/R	WATER QUALITY
WQL FOR TRC	

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME	***PERMIT #***
FACILITY TYPE	***STATUS***
LEE COUNTY LANDFILL	311001-1101 (DWP-038)
MUNICIPAL	CLOSED

Mining Activities

MINING COMPANY	***PERMIT #***
MINE NAME	***MINERAL***
LEE COUNTY	0423-61
MCCASKILL MINE	SAND

Growth Potential

There is a low to moderate potential for growth in this watershed, which contains the Town of Lynchburg and portions of the City of Bishopville and the Town of Cartersville. U.S. Hwy. 76 and a rail line cross the watershed south of Lynchburg connecting the Cities of Sumter and Florence. Interstates I-20 and I-95 also cross the watershed and some growth may be seen around the interchanges. An additional source of future growth is the new Lee Correctional Institution. The Darlington County Water and Sewer Authority may extend water lines into the area east of the Lynches River, which could precipitate residential growth, but no significant commercial or industrial growth. The remainder of the watershed is rural with agricultural and timberland uses.

03040202-100

(Sparrow Swamp)

General Description

Watershed 03040202-100 is located in Darlington, Florence, and Lee Counties and consists primarily of ***Sparrow Swamp*** and its tributaries. The watershed occupies 107,735 acres of the Upper and Lower Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Rains-Noboco-Norfolk-Bonneau series. The erodibility of the soil (K) averages 0.14; the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 49.8% agricultural land, 23.4% forested land, 19.4% scrub/shrub land, 6.5% forested wetland, 0.5% urban land, and 0.4% water.

Sparrow Swamp originates near the City of Hartsville, and accepts drainage from Burnt Branch before flowing through Smith Pond and Marco Millpond. Gully Run flows through Bell Pond and joins Sparrow Swamp in Marco Millpond. Long Branch enters the swamp downstream, followed by Harris Branch and Screeches Branch. Boggy Gully Swamp (The Bay, Big Cypress Bay, Little Cypress Bay, Boggy Gully Bay, Bees Wax Bay) also originates near Hartsville, and flows through Harolds Millpond and Andrews Millpond before draining into Sparrow Swamp. Sparrow Swamp then accepts drainage from McCalls Branch, Newman Swamp, Boyds Pond, Long Branch, Deep Hole Swamp (Camel Branch, Bay Branch, Bay Lake, Poplar Branch), and Magnolia Branch. The Lake Swamp Watershed enters the system next followed by Long Branch (Meadow Prong) at the base of the watershed. The Sparrow Swamp Watershed flows into the Lynches River. There are numerous ponds and lakes in this watershed (totaling 218.1 acres), and a total of 225.0 stream miles. Sparrow Swamp and Newman Swamp are classified FW* (Dissolved oxygen not less than 4 mg/l and pH between 5.0 and 8.5) and the remaining streams in the watershed are classified FW.

Water Quality

Station #	Type	Class	Description
PD-229	S	FW*	NEWMAN SWAMP AT S-16-449 0.9 MILES NE OF LAMAR
PD-072	S	FW*	SPARROW SWAMP AT S-16-697 2.5 MILES E OF LAMAR
PD-332	P	FW*	SPARROW SWAMP AT S-21-55 NEAR JOHNSONS CROSSROADS

Newman Swamp (PD-229) - Aquatic life uses are not supported due to dissolved oxygen excursions, compounded by a significant decreasing trend in dissolved oxygen concentration and a significant increasing trend in turbidity. There is a significant decreasing trend in pH. This is a blackwater swamp system, characterized by naturally low dissolved oxygen concentrations; however, dissolved oxygen concentrations are inordinately low and the decreasing trend in dissolved oxygen suggests that conditions are deteriorating. It is also a secondary monitoring station with sampling purposely biased towards periods with potentially low dissolved oxygen concentrations. Recreational uses are fully supported.

Sparrow Swamp - There are two monitoring sites along Sparrow Swamp, and aquatic life and recreational uses are fully supported at both sites. The stream frequently does not flow or is dry at the upstream site ***(PD-072)***. Although dissolved oxygen excursions occurred, they were typical of values seen in stagnant streams and were considered natural, not standards violations. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter.

There is a significant increasing trend in turbidity at the downstream site ***(PD-332)***. There is also a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. P,P' DDE (a metabolite of DDT) was detected in the 1994 sediment sample and PCB-1242 was detected in the 1998 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
SPARROW SWAMP TOWN OF TIMMONSVILLE WWTP PIPE #: 001 FLOW:1.29 (HCR) WQL FOR TRC,NH3N	SC0025356 MAJOR DOMESTIC WATER QUALITY

Nonpoint Source Management Program

Camp Facilities

FACILITY NAME/TYPE ***RECEIVING STREAM***	***PERMIT #*** ***STATUS***
LOCKHAVEN CAMPERS CT/FAMILY SPARROW SWAMP	21-0279 ACTIVE

Land Disposal Activities

Land Application Sites

LAND APPLICATION SYSTEM ***FACILITY NAME***	***ND#*** ***TYPE***
SPRAYFIELD TOWN OF LAMAR	ND0063495 DOMESTIC

Growth Potential

There is a moderate potential for growth in this watershed, which contains the Towns of Lydia and Lamar, and a portion of the Town of Timmonsville. U.S. Hwy. 76 and a rail line cross the watershed at the Town of Timmonsville connecting the Cities of Sumter and Florence, and U.S. Hwy. 401 crosses the watershed at the Town of Lamar. Water and sewer services are provided for the Towns of Lamar and Timmonsville and the areas immediately surrounding them. Improved water and sewer systems in these towns holds the potential for future industrial growth in the area. Interstates I-20 and I-95 cross the watershed, and an expansion of the Timmonsville Water and Sewer System along S.C. Hwy. 403 to I-95 will encourage growth. In addition to the S.C. Hwy. 403/I-95 interchange, there is a new interstate interchange at I-95 and county road 21-83. Honda U.S.A. recently built a plant at this interchange, and is now undergoing a major expansion that should spur future growth in the area. The remainder of the watershed is rural with agricultural and timberland uses.

03040202-110

(Lake Swamp)

General Description

Watershed 03040202-110 is located in Darlington and Florence Counties and consists primarily of ***Lake Swamp*** and its tributaries. The watershed occupies 34,827 acres of the Upper and Lower Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Rains-Norfolk-Lynchburg series. The erodibility of the soil (K) averages 0.17; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 42.7% agricultural land, 28.4% forested land, 22.7% scrub/shrub land, 5.5% forested wetland (swamp), 0.5% urban land, and 0.2% water.

Lake Swamp originates near the City of Hartsville and accepts drainage from Dargans Bay and Horse Branch. There are 51.8 stream miles in this watershed and a few ponds totaling 8.9 acres. Lake Swamp is classified FW* (Dissolved oxygen not less than 4 mg/l and pH between 5.0 and 8.5) and the remaining streams are classified FW.

Water Quality

Station #	Type	Class	Description
PD-345	W	FW*	LAKE SWAMP AT S-21-38

***Lake Swamp (PD-345)* -** Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are fully supported.

Growth Potential

There is a low potential for growth in this watershed, which contains a portion of the Town of Timmonsville. U.S. Hwy. 76 and a rail line cross the watershed at the Town of Timmonsville connecting the Cities of Sumter and Florence. There are no plans to widen highway corridors U.S. Hwy. 401 or U.S. Hwy. 76 west of Timmonsville at this time; however, there are plans to widen U.S. Hwy. 76 east of Timmonsville to I-95, which would bring about commercial growth. Water and sewer services are provided for the Town of Timmonsville and the area immediately surrounding it, and improved water and sewer systems in this town holds the potential for future industrial growth in the area. Interstates I-20 and I-95 cross the watershed. The remainder of the watershed is rural with agricultural and timberland uses.

03040202-120

(Lynches River)

General Description

Watershed 03040202-120 is located in Florence County and consists primarily of the ***Lynches River*** and its tributaries from Sparrow Swamp to its confluence with the Pee Dee River. The watershed occupies 108,639 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Rains-Lynchburg-Cantey-Chastain-Norfolk series. The erodibility of the soil (K) averages 0.22; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 30.6% forested land, 29.2% scrub/shrub land, 27.6% agricultural land, 12.0% forested wetland (swamp), 0.4% urban land, 0.1% water, and 0.1% nonforested wetland (marsh).

This segment of the Lynches River accepts drainage from its upstream reaches together with Mill Branch, Carter Creek (Big Branch), Bay Branch (Polecat Branch), McCall Branch (Taylor Branch), and Ward Mill Branch. Further downstream, Cypress Branch enters the river followed by Green Spring Branch (Cox Bay Branch, Horse Branch), Millpond Branch, High Hill Drainage Canal, the Big Swamp Watershed, Deep Creek, and the Lake Swamp Watershed. There are several recreational ponds (totaling 67.3 acres) in this watershed and a total of 179.8 stream miles, all classified FW. The Lynches River State Park extends across the upper portion of the watershed.

Water Quality

Station #	Type	Class	Description
PD-041	P	FW	LYNCHES RIVER AT US 52 NEAR EFFINGHAM
PD-281	P	FW	LYNCHES RIVER AT S-21-49 5 MILES NW JOHNSONVILLE

Lynches River - There are two monitoring sites along this section of the Lynches River. At the upstream site ***(PD-041)***, aquatic life uses are fully supported; however, there is a significant decreasing trend in dissolved oxygen and a significant increasing trend in turbidity. There was also a very high concentration of zinc measured in 1996. There is a significant decreasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are fully supported due to fecal coliform bacteria excursions; however, there is a significant increasing trend in fecal coliform bacteria concentration.

At the downstream site ***(PD-281)***, aquatic life uses are also fully supported; however, there is a significant decreasing trend in dissolved oxygen and a significant increasing trend in turbidity. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. A high concentration of zinc and very high concentrations of copper and lead were detected in the 1994 sediment sample, and P,P' DDE (a metabolite of DDT) was detected in the 1998 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are fully supported.

A fish consumption advisory has been issued by the Department for mercury and includes the Lynches River within this watershed (see advisory p.35).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
LYNCHES RIVER	SC0025933
CITY OF JOHNSONVILLE/EAST PLT	MAJOR DOMESTIC
PIPE #: 001 FLOW: 3.0	WATER QUALITY
WQL FOR TRC,NH3N	
LYNCHES RIVER	SC0039284
MCCALL FARMS INC.	MINOR INDUSTRIAL
PIPE #: 001 FLOW: 0.10	EFFLUENT
LYNCHES RIVER	SCG250140
WELLMAN INC./JOHNSONVILLE	MINOR INDUSTRIAL
PIPE #: FLOW: 0.13	EFFLUENT
LYNCHES RIVER	SC0046311
CITY OF LAKE CITY/LAKE SWAMP WWTP	MAJOR DOMESTIC
PIPE #: 001 FLOW: 4.20 IN SUMMER; 6.0 IN WINTER	WATER QUALITY
WQL FOR NH3N	

Nonpoint Source Management Program

Land Disposal Activities

Landfill Activities

SOLID WASTE LANDFILL NAME	***PERMIT #***
FACILITY TYPE	***STATUS***
FLORENCE COUNTY LANDFILL	DWP-021
MUNICIPAL	CLOSED
WELLMAN INC. LANDFILL	IWP-092
INDUSTRIAL	---------

Land Application Sites

LAND APPLICATION SYSTEM	***PERMIT #***
FACILITY NAME	***TYPE***
SPRAYFIELD	ND0070424
FLORENCE COUNTY/DIST. #6	DOMESTIC

Mining Activities

MINING COMPANY	***PERMIT #***
MINE NAME	***MINERAL***
CAROLINA SAND, INC.	0648-41
JOHNSONVILLE PLANT	SAND

Growth Potential

There is a low potential for growth in this watershed, which contains the Town of Coward and portions of the Towns of Scranton and Salem. Water service is available in the Towns of Coward and Scranton, but sewer service is available only in Scranton. The watershed is bisected by U.S. Hwy. 52 and a rail line running north/south and by U.S. Hwy. 378 running east/west. U.S. Hwy. 52 is a major highway route from the City of Florence to the City of Charleston. Portions not already widened to four lanes are expected to be within 10-15 years, which could encourage industrial growth.

03040202-130

(Big Swamp)

General Description

Watershed 03040202-130 is located in Florence County and consists primarily of ***Big Swamp*** and its tributaries. The watershed occupies 38,152 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Rains-Norfolk-Lynchburg-Wagram series. The erodibility of the soil (K) averages 0.15; the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 36.4% scrub/shrub land, 32.7% forested land, 25.5% agricultural land, 5.1% forested wetland (swamp), 0.2% urban land, and 0.1% water.

Big Swamp originates near the Town of Pamplico with the confluence of Big Swamp Branch (Gum Branch) and Buck Branch. Further downstream, Cypress Branch and Little Swamp enter the system. There are a total of 51.8 stream miles in this watershed and several ponds totaling 61.1 acres. Big Swamp is classified FW* (dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5) and the remaining streams in the watershed are classified FW. The Big Swamp Watershed flows into the Lynches River.

Water Quality

Station #	Type	Class	Description
PD-168	S	FW*	BIG SWAMP AT S-21-360 1.1 MILES W OF PAMPLICO
PD-169	S	FW*	BIG SWAMP AT US 378 & SC 51 0.9 MILES W OF SALEM

Big Swamp - There are two monitoring sites along Big Swamp. The stream frequently does not flow or is dry at the monitoring locations. Aquatic life uses are not supported at the upstream site ***(PD-168)*** due to dissolved oxygen excursions, compounded by a significant decreasing trend in dissolved oxygen concentration. This is a secondary monitoring station with sampling purposely biased towards periods with potentially low dissolved oxygen concentrations. However, the dissolved oxygen concentrations were inordinately low and the decreasing trend in dissolved oxygen suggests that conditions are deteriorating. Recreational uses are fully supported.

At the downstream site ***(PD-169)***, aquatic life uses are not supported due to dissolved oxygen excursions. This is another secondary monitoring station and purposely biased towards periods with potentially low dissolved oxygen concentrations. However, the dissolved oxygen concentrations were inordinately low. There is a significant increasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria concentration.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
BIG SWAMP	SC0021351
TOWN OF PAMPLICO	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.2	WATER QUALITY
PIPE #: 001 FLOW: 0.3 (PROPOSED)	
WQL FOR DO,TRC,NH3N,BOD5	

Growth Potential

There is a low potential for growth in this watershed, which contains the Town of Pamplico and a portion of the Town of Salem. Water and sewer services are available in and immediately surrounding Pamplico. The remainder of the watershed is rural with agricultural uses.

03040202-140

(Camp Branch)

General Description

Watershed 03040202-140 is located in Florence County and consists primarily of ***Camp Branch*** and its tributaries. The watershed occupies 19,848 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Lynchburg-Fuquay-Rains-Goldsboro series. The erodibility of the soil (K) averages 0.15; the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 46.4% agricultural land, 30.9% forested land, 17.0% scrub/shrub land, 3.7% forested wetland, and 2.0% urban land.

Camp Branch flows into the Lake Swamp Watershed near the City of Lake City. There are a total of 31.3 stream miles in this watershed, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-346	W	FW	CAMP BRANCH AT S-21-278

***Camp Branch (PD-346)* -** Aquatic life uses are not supported due to dissolved oxygen excursions. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations; however, the dissolved oxygen concentrations were inordinately low. Although pH excursions occurred, the pH values were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are fully supported.

Growth Potential

There is a low to moderate potential for growth in this watershed, which contains a portion of the City of Lake City. Water and sewer services are limited to the urban areas of Lake City. The base of the watershed is traversed by U.S. Hwy. 52 (north/south) and U.S. Hwy. 378 (east/west). U.S. Hwy. 52 is a four-lane highway, and the main corridor between the Cities of Florence and Charleston. A rail line parallels the road corridor between Lake City and Florence. There are no plans to widen U.S. Hwy. 378, but it is a major beach access highway. Additional commercial development is possible along U.S. Hwy. 52 and at the U.S. Hwy. 52/U.S. Hwy. 378 intersection at the base of the watershed.

03040202-150

(Lake Swamp)

General Description

Watershed 03040202-150 is located in Florence County and consists primarily of ***Lake Swamp*** and its tributaries from its origin to Singleton Swamp. The watershed occupies 25,693 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Lynchburg-Fuquay-Rains-Goldsboro series. The erodibility of the soil (K) averages 0.15; the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 43.1% agricultural land, 32.0% forested land, 13.8% scrub/shrub land, 7.8% forested wetland (swamp), 3.2% urban land, and 0.1% water.

Twomile Branch (Cypress Branch, Sandy Run Branch, Spring Run) merges with the Camp Branch Watershed near the City of Lake City to form the headwaters of Lake Swamp. There are a total of 46.4 stream miles in this watershed and a few ponds totaling 16.7 acres. Lake Swamp is classified FW* (Dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5) and the remaining streams are classified FW.

Water Quality

Station #	Type	Class	Description
PD-085	S	FW*	LAKE SWAMP AT US 378
PD-086A	S	FW*	LAKE SWAMP ON SC 341

Lake Swamp - There are two monitoring sites along Lake Swamp. At the upstream site ***(PD-085)***, aquatic life uses are fully supported. This is a blackwater swamp system, characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater swamps and were considered natural, not standards violations. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters. Recreational uses are fully supported.

At the downstream site ***(PD-086A)***, aquatic life uses are not supported due to dissolved oxygen excursions, compounded by a significant increasing trend in turbidity. This too is a blackwater swamp system, characterized by naturally low dissolved oxygen concentrations; however, dissolved oxygen concentrations are inordinately low. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME	***PERMIT #***
FACILITY TYPE	***STATUS***
LAKE CITY DUMP	-----------
--------	CLOSED

Growth Potential

There is a low to moderate potential for growth in this watershed, which contains portions of the City of Lake City and the Town of Scranton. Water and sewer services are limited to the urban areas of Lake City and Scranton. The sewer system in Scranton and the wastewater system in Lake City are currently undergoing an expansion. The watershed is traversed by U.S. Hwy. 52 (north/south) and U.S. Hwy. 378 (east/west). U.S. Hwy. 52 is a four-lane highway, and the main corridor between the Cities of Florence and Charleston. A rail line parallels the road corridor between Lake City and Florence. This highway corridor contains the NanYa Industrial Complex and a surrounding multi-county industrial park, making this a prime industrial growth corridor in the region. The Florence County Industrial Park at Lake City and the recently expanded water and sewer capacity of the City of Lake City should also encourage industrial growth. There are no plans to widen U.S. Hwy. 378, but it is a major beach access highway. Additional commercial development is possible along U.S. Hwy. 52 and at the U.S. Hwy. 52/U.S. Hwy. 378 intersection.

03040202-160

(Singleton Swamp)

General Description

Watershed 03040202-160 is located in Florence and Williamsburg Counties and consists primarily of ***Singleton Swamp*** and its tributaries. The watershed occupies 36,030 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Lynchburg-Foreston-Fuquay-Rains-Goldsboro series. The erodibility of the soil (K) averages 0.15; the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 40.8% forested land, 32.1% agricultural land, 14.1% scrub/shrub land, 9.8% forested wetland, 2.9% urban land, 0.1% water, 0.1% barren land, and 0.1% nonforested wetland.

Smith Swamp (Spring Bay, Graham Branch) and McNamee Swamp join to form Singleton Swamp, which accepts drainage from Long Branch before draining into Lake Swamp. There are a total of 41.3 stream miles in this watershed and a few ponds totaling 27.2 acres, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-314	W	FW	SINGLETON SWAMP AT S-21-67

***Singleton Swamp (PD-314)* -** Aquatic life uses are fully supported. This is a blackwater swamp system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH and dissolved oxygen excursions occurred, they were typical of values seen in blackwater swamps and were considered natural, not standards violations. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME / ***FACILITY TYPE***	***PERMIT #*** / ***STATUS***
WILLIAMSBURG COUNTY MUNICIPAL	451002-1201 --------
CITY OF LAKE CITY LANDFILL MUNICIPAL	211002-1201 (DWP-911, DWP-067) CLOSED

Growth Potential

There is a low potential for growth in this watershed, which contains a portion of the City of Lake City. Water and sewer services are limited to the urban areas of Lake City. An industrial park has been designated on U.S. Hwy. 52, near the top of the watershed, and may bring about some future growth.

03040202-170

(Lake Swamp)

General Description

Watershed 03040202-170 is located in Florence and Williamsburg Counties and consists primarily of ***Lake Swamp*** and its tributaries from Singleton Swamp to its confluence with the Lynches River. The watershed occupies 23,417 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Foreston-Rains series. The erodibility of the soil (K) averages 0.18; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 42.5% agricultural land, 30.4% forested land, 14.3% scrub/shrub land, 12.3% forested wetland (swamp), 0.4% urban land, and 0.1% water.

This section of Lake Swamp accepts drainage from its upstream reach and flows into the Lynches River. There are a total of 44.1 stream miles in this watershed and a few ponds totaling 27.2 acres. Lake Swamp is classified FW* (Dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5) and the remaining streams in the watershed are classified FW.

Water Quality

Station #	Type	Class	Description
PD-087	S	FW*	LAKE SWAMP AT SC 341 2.6 MILES W OF JOHNSONVILLE

Lake Swamp (PD-087) - Aquatic life uses are fully supported; however, there is a significant increasing trend in turbidity. There is a significant increasing trend in pH. This is a blackwater swamp system, characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater swamps and were considered natural, not standards violations. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported.

Growth Potential

There is a low potential for growth in this watershed, which contains a portion of the Town of Johnsonville.

Black River Basin Description

The ***Black River Basin*** encompasses 2,051 square miles with geographic regions extending from the Sandhills to the Upper and Lower Coastal Plains and into the Coastal Zone. The Black River encompasses 18 watersheds, some 1.3 million acres of which 37.9% is forested land, 28.1% is agricultural land, 17.5% is scrub/shrub land, 12.9% is forested wetland, 2.2% is urban land, 0.8% is nonforested wetland, and 0.6% is water. The urban land percentage is comprised chiefly of the City of Sumter. There are approximately 2,195 stream miles, 2,332 acres of lake waters, and 763 acres of estuarine areas in the Black River Basin. The Black River originates near the City of Bishopville and accepts drainage from Rocky Bluff Swamp, the Pocotaligo River, Pudding Swamp, Kingstree Swamp Canal, and Black Mingo Creek before merging with the Pee Dee River.

Physiographic Regions

The State of South Carolina has been divided into six Major Land Resource Areas (MLRAs) by the USDA Soil Conservation Service. The MLRAs are physiographic regions that have soils, climate, water resources, and land uses in common. The physiographic regions that define the Black River Basin are as follows:

The **Sandhills** are an area of gently sloping to strongly sloping uplands with a predominance of sandy areas and scrub vegetation; elevations range from 250 to 450 feet.

The **Upper Coastal Plain** is an area of gentle slopes with increased dissection and moderate slopes in the northwestern section that contain the State's major farming areas; elevations range from 100 to 450 feet.

The **Lower Coastal Plain** is an area that is mostly nearly level and is dissected by many broad, shallow valleys with meandering stream channels; elevations range from 25 to 125 feet.

The **Coastal Zone** is a mostly tidally-influenced area that is nearly level and dissected by many broad, shallow valleys with meandering stream channels; most of the valleys terminate in tidal estuaries along the coast; elevations range from sea level to about 25 feet.

Land Use/Land Cover

General land use/land cover data for South Carolina were derived from SCDNR 1990 SPOT multispectral satellite images using image mapping software to inventory the State's land classifications, which are as follows.

Urban land is characterized by man-made structures and artificial surfaces related to industrial, commercial, and residential uses, as well as vegetated portions of urban areas.

Agricultural/Grass land is characterized by cropland, pasture, and orchards and may include some grass cover in urban, scrub/shrub, and forest areas.

Scrub/Shrub land is adapted from the western Rangeland classification to represent the "fallow" condition of the land (currently unused, yet vegetated), and is most commonly found in the dry Sandhills region including areas of farmland, sparse pines, regenerating forest lands, and recently harvested timber lands.

Forest land is characterized by deciduous and evergreen trees not including forests in wetland settings.

Forested Wetland (swampland) is the saturated bottomland, mostly hardwood forests that are primarily composed of wooded swamps occupying river floodplains and isolated low-lying wet areas, primarily located in the Coastal Plain.

Nonforested Wetland (marshland) is dependent on soil moisture to distinguish it from scrub/shrub since both classes contain grasses and low herbaceous cover; nonforested wetlands are most common along the coast and isolated freshwater areas found in the Coastal Plain.

Barren land is characterized by an unvegetated condition of the land, both natural (rock, beaches and unvegetated flats) and man-induced (rock quarries, mines, and areas cleared for construction in urban areas or clearcut forest areas).

Water (non-land) includes both fresh and tidal waters.

Soil Types

The dominant soil associations, or those soil series comprising, together, over 40% of the land area, were recorded for each watershed in percent descending order. The individual soil series for the Black River Basin are described as follows.

Bladen soils are poorly drained soils on low, nearly level areas, and low ridges.

Bonneau soils are deep, moderately well drained soils with loamy subsoil on ridges.

Emporia soils are well drained, gently sloping soils with surface and subsoils of loamy fine sand.

Foreston soils are moderately well drained soils that formed in loamy marine sediments in upland areas of the Coastal Plain, and on high ridges and slight rises within broad flats.

Fuquay soils are well drained, loamy and sandy soils with clayey or loamy subsoil.

Goldsboro soils are moderately well to poorly drained soils with loamy subsoil on nearly level ridges and in shallow depressions.

Hobcaw soils are nearly level, very poorly drained soils in depressions.

Johnston soils are nearly level, moderately well drained to very poorly drained soils, loamy throughout with a sandy surface layer on floodplains.

Lakeland soils are well drained, sandy soils with loamy subsoil and excessively drained soils.

Levy soils are nearly level, very poorly drained soils, mucky throughout or loamy and underlain with clayey layers, rarely or frequently flooded with fresh water.

Lynchburg soils are moderately well to poorly drained soils, with loamy subsoil, on nearly level ridges and in shallow depressions.

Noboco soils are well drained, sandy soils with a loamy or clayey subsoil.

Norfolk soils are deep, well drained soils, with loamy subsoil, nearly level and gently sloping elevated uplands.

Ogeechee soils are poorly drained and moderately well drained, loamy soils with clayey or loamy subsoil, on terraces.

Paxville soils are somewhat to very poorly drained soils, with loamy subsoil, on low ridges and in depressions.

Pelion soils are well drained and moderately well drained soils that have a sandy surface layer and a loamy subsoil, many with a fragipan in the subsoil.

Rains soils are moderately well to poorly drained soils, with a loamy subsoil, on nearly level ridges and in shallow depressions.

Wagram soils are well drained to very poorly drained, depressional to nearly level and gently sloping soils with a loamy to sandy surface layer and a clayey to loamy subsoil.

Wahee soils are poorly drained soils on low, nearly level areas and low ridges.

Yauhannah soils are poorly drained to moderately well drained soils with a loamy subsoil, on nearly level ridges and in shallow depressions.

Yemassee soils are poorly drained to moderately well drained soils with a loamy subsoil, on nearly level ridges and in shallow depressions.

Slope and Erodibility

The definition of soil erodibility differs from that of soil erosion. Soil erosion may be more influenced by slope, rainstorm characteristics, cover, and land management than by soil properties. Soil erodibility refers to the properties of the soil itself, which cause it to erode more or less easily than others when all other factors are constant.

The soil erodibility factor, K, is the rate of soil loss per erosion index unit as measured on a unit plot, and represents an average value for a given soil reflecting the combined effects of all the soil properties that significantly influence the ease of soil erosion by rainfall and runoff if not protected. The K values closer to 1.0 represent higher soil erodibility and a greater need for best management practices to minimize erosion and contain those sediments which do erode. The range of K-factor values in the Black River Basin is from 0.10 to 0.20.

Fish Consumption Advisory

At the time of publication, a fish consumption advisory issued by SCDHEC is in effect for **the Black River, the Pocotaligo River, and Black Mingo Creek** advising people to limit the amount of some types of fish consumed from these waters. Fish consumption advisories are updated annually in March. For background information and the most current advisories please visit the Bureau of Water homepage at http://www.scdhec.net/water and click on "Advisories". For more information or a hard copy of the advisories, call SCDHEC's Division of Health Hazard Evaluation toll-free at (888) 849-7241.

Climate

Normal yearly rainfall in the Black River Basin area is 48.14 inches, according to the S.C. historic climatological record. Data compiled from National Weather Service stations in Bishopville, Tilghman for Nursery, Sumter, Georgetown, and Kingstree were used to determine the general climate information for this portion of the State. The highest level of rainfall occurs in the summer with 16.36 inches; 9.62, 10.71, and 11.45 inches of rain falling in the fall, winter, and spring, respectively. The average annual daily temperature is 63.7°F. Summer temperatures average 79.2°F and fall, winter, and spring temperatures are 64.7°F, 47.2°F, and 63.6°F, respectively.

Watershed Evaluations

03040205-010

(Black River)

General Description

Watershed 03040205-010 is located in Lee and Sumter Counties and consists primarily of the ***Black River*** and its tributaries from its origin to Church Branch. The watershed occupies 52,966 acres of the Sandhills and Upper Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Noboco-Bonneau-Paxville-Johnston series. The erodibility of the soil (K) averages 0.16; the slope of the terrain averages 3%, with a range of 0-10%. Land use/land cover in the watershed includes: 56.4% agricultural land, 20.2% scrub/shrub land, 12.5% forested land, 8.3% forested wetland (swamp), 1.4% urban land, 1.0% nonforested wetland (marsh), and 0.2% water.

The Black River originates near the City of Bishopville and accepts drainage from Gin Branch (Laws Branch), Broad Branch, Church Branch (Meadow Branch), and Casual Branch. Further downstream, Stony Run Branch (Little Stony Run Branch) enters the river followed by Nancy Branch and the Atkins Drainage Canal Watershed. The river flows through the Black River Swamp at the base of the watershed. There are several recreational ponds (totaling 67.6 acres) and a total of 106.6 stream miles in this watershed. The Black River is classified FW* (Dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5) and the remaining streams in the watershed are classified FW.

Water Quality

Station #	Type	Class	Description
PD-353	S	FW*	BLACK RIVER AT S-43-57

Black River (PD-353) - Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are partially supported due to fecal coliform bacteria excursions.

A fish consumption advisory has been issued by the Department for mercury and includes the Black River within this watershed (see advisory p.73).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
GIN BRANCH	SC0044792
LEE COUNTY LANDFILL, S.C., LLC	MINOR INDUSTRIAL
PIPE #: 001 FLOW: 1.47	WATER QUALITY
WQL FOR DO,TRC,NH3N,BOD5	

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME	***PERMIT #***
FACILITY TYPE	***STATUS***
LEE COUNTY LANDFILL - MAWS	312411-1101
MUNICIPAL	ACTIVE
LEE COUNTY LANDFILL	DWP-136
MUNICIPAL	ACTIVE

Land Application Sites

LAND APPLICATION SYSTEM	***ND#***
FACILITY NAME	***TYPE***
SPRAYFIELD	ND0069787
TOWN OF MAYESVILLE	DOMESTIC

Growth Potential

There is a low to moderate potential for growth in this watershed, which contains a portion of the City of Bishopville and the Town of Mayesville, together with portions of I-20, U.S. Hwy. 15, and U.S. Hwy. 76. Residential, commercial, and industrial growth is expected surrounding the municipal areas and major road corridors. The remainder of the watershed is rural with agricultural and timberland uses.

03040205-020

(Atkins Drainage Canal)

General Description

Watershed 03040205-020 is located in Lee County and consists primarily of the **Atkins Drainage Canal** and its tributaries. The watershed occupies 8,456 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Lynchburg- Fuquay-Rains-Goldsboro-Paxville series. The erodibility of the soil (K) averages 0.16; the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 46.1% forested land, 27.1% scrub/shrub land, 15.7% agricultural land, 8.5% forested wetland (swamp), 2.5% nonforested wetland (marsh), and 0.1% water.

The Atkins Drainage Canal flows into the Black River Watershed. There are a total of 19.0 stream miles in this watershed, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-354	W	FW	CANAL TO ATKINS DRAINAGE CANAL AT SC 527 (.75 MI N OF US 76)

Canal draining to Atkins Drainage Canal (PD-354) - Aquatic life uses and recreational uses are fully supported.

Growth Potential

There is a low potential for growth in this watershed.

03040205-030

(Scape Ore Swamp)

General Description

Watershed 03040205-030 is located in Lee and Kershaw Counties and consists primarily of ***Scape Ore Swamp*** and its tributaries from its origin to Mechanicsville Swamp. The watershed occupies 68,991 acres of the Sandhills and Upper Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Pelion-Alpin-Norfolk series. The erodibility of the soil (K) averages 0.14; the slope of the terrain averages 7%, with a range of 2-15%. Land use/land cover in the watershed includes: 48.0% forested land, 28.3% agricultural land, 16.5% scrub/shrub land, 6.6% forested wetland (swamp), 0.4% water, and 0.2% nonforested wetland (marsh).

Timber Creek (Grassy Bottom Branch, Maple Branch, Long Branch, Nancy Branch, Pates Mill Branch, Fuzzy Branch) and Black Creek join to form Scape Ore Swamp. Downstream of the confluence, Scape Ore Swamp accepts drainage from Cedar Creek, Cedar Creek Pond, Gum Springs Branch and Beaverdam Creek. There are numerous recreational lakes and ponds (totaling 156.9 acres) in this watershed and a total of 86.3 stream miles, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-355	W	FW	SCAPE ORE SWAMP AT S-31-108

Scape Ore Swamp (PD-355) - Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH and dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are partially supported due to fecal coliform bacteria excursions.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
BLACK CREEK SC PIPELINE CORP. PIPE #: 001 FLOW: M/R	SCG670001 MINOR INDUSTRIAL EFFLUENT

Nonpoint Source Management Program

Camp Facilities

FACILITY NAME/TYPE	*PERMIT #*
RECEIVING STREAM	*STATUS*
CAMP IN THE PINES/RESIDENT	31-0201
SCAPE ORE SWAMP TRIBUTARY	ACTIVE

Growth Potential

There is a low potential for growth in this watershed.

03040205-040

(Mechanicsville Swamp)

General Description

Watershed 03040205-040 is located in Lee County and consists primarily of ***Mechanicsville Swamp*** and its tributaries. The watershed occupies 12,368 acres of the Upper Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Wagram-Pelion-Norfolk-Appling series. The erodibility of the soil (K) averages 0.16; the slope of the terrain averages 5%, with a range of 0-15%. Land use/land cover in the watershed includes: 44.2% agricultural land, 30.1% forested land, 17.0% scrub/shrub land, 7.0% forested wetland (swamp), 1.3% water, and 0.4% nonforested wetland (marsh).

McGrits Creek flows through McGrits Millpond and Ashwood Lake before flowing into Mechanicsville Swamp. Mechanicsville Swamp then drains into the Scape Ore Swamp Watershed. There are 19.2 stream miles and a few lakes (totaling 141.4 acres) in this watershed, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-356	W	FW	MECHANICSVILLE SWAMP AT S-31-500

Mechanicsville Swamp (PD-356) - Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Ashwood Lake - Ashwood Lake is a 75-acre impoundment on McGrits Creek, with a maximum depth of approximately 13 feet (4.0 meters) and an average depth of three feet (0.9 meters). The lake's watershed comprises 10 square miles (27 km2). Ashwood Lake was stocked with 750 grass carp in 1989 and treated with aquatic herbicides in 1990, 1992, and 1995 to control aquatic plants and provide access for boating and fishing. The treatments were successful and no further treatments have been necessary to control the aquatic plants.

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME FACILITY TYPE	PERMIT # STATUS
ASHWOOD DUMP --------	------- CLOSED

Growth Potential

There is a low potential for growth in this watershed.

03040205-050

(Scape Ore Swamp)

General Description

Watershed 03040205-050 is located in Sumter and Lee Counties and consists primarily of ***Scape Ore Swamp*** and its tributaries from Mechanicsville Swamp to its confluence with the Black River. The watershed occupies 38,941 acres of the Upper Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Noboco-Rains-Bonneau-Johnston series. The erodibility of the soil (K) averages 0.16; the slope of the terrain averages 2%, with a range of 0-10%. Land use/land cover in the watershed includes: 32.5% agricultural land, 23.6% scrub/shrub land, 23.0% forested land, 18.0% forested wetland (swamp), 1.2% urban land, 1.0% nonforested wetland (marsh), and 0.7% water.

This section of Scape Ore Swamp accepts drainage from it upper reach, together with Long Branch (Little Long Branch), the Rocky Bluff Swamp Watershed, Alligator Branch, and Concord Branch. There are a total of 104.1 stream miles and a few ponds (totaling 34.5 acres) in this watershed, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-201	W	FW*	SCAPE ORE SWAMP AT S-43-41

Scape Ore Swamp (PD-201) - Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are fully supported.

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
SUMTER COUNTY LANDFILL MUNICIPAL	431001-1101 CLOSED
SUMTER COUNTY TRANSFER STATION MUNICIPAL	431001-6001 CLOSED

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
LEE COUNTY LEE COUNTY BORROW PIT	1042-61 SAND/CLAY

Growth Potential

There is a moderate to high potential for growth in this watershed which contains portions of the City of Sumter and the Town of Mayesville. Residential, commercial, and industrial growth is expected in the area fringing the City of Sumter. Growth is also expected along the corridor of U.S. Hwy. 76 en route from Sumter to the City of Florence, and I-20 which crosses the watershed south of the City of Bishopville. U.S. Hwys. 15, 521, and 378 also bisect the watershed, along with two rail lines.

03040205-060

(Rocky Bluff Swamp)

General Description

Watershed 03040205-060 is located in Sumter and Lee Counties and consists primarily of ***Rocky Bluff Swamp*** and its tributaries. The watershed occupies 55,325 acres of the Upper Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Wagram-Norfolk-Rains series. The erodibility of the soil (K) averages 0.16; the slope of the terrain averages 3%, with a range of 0-6%. Land use/land cover in the watershed includes: 50.7% agricultural land, 22.4% forested land, 15.3% scrub/shrub land, 8.9% forested wetland (swamp), 1.7% urban land, 0.6% water, and 0.4% nonforested wetland (marsh).

Rocky Bluff Swamp accepts drainage from Lee Swamp (Ardis Pond) and flows through Whites Millpond near the City of Sumter. Brunson Branch (Mile Branch, Mulberry Branch) flows into the swamp next, followed by Cowpen Swamp. There are several lakes and ponds in this watershed (totaling 108.3 acres) and a total of 107.1 stream miles. Rocky Bluff Swamp and Lee Swamp are classified FW* (Dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.0) and the remaining streams in the watershed are classified FW.

Water Quality

Station #	Type	Class	Description
PD-357	W	FW*	ROCKY BLUFF SWAMP AT US 76

Rocky Bluff Swamp (PD-357) - Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are fully supported.

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME / ***FACILITY TYPE***	***PERMIT #*** / ***STATUS***
SUMTER COUNTY LANDFILL/SHAW CROSS RDS MUNICIPAL	DWP-091, DWP-053 CLOSED
SUMTER COUNTY C&D LANDFILL CONSTRUCTION	431001-1201 (CWP-001) CLOSED

Growth Potential

There is a low potential for growth in this watershed, with the exception of the base of the watershed where a portion of the City of Sumter resides.

03040205-070

(Black River)

General Description

Watershed 03040205-070 is located in Sumter, Clarendon, and Lee Counties and consists primarily of the ***Black River*** and its tributaries from Church Branch to the Pocotaligo River. The watershed occupies 76,437 acres of the Upper Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Lynchburg-Noboco-Bonneau-Johnston-Rains series. The erodibility of the soil (K) averages 0.16; the slope of the terrain averages 2%, with a range of 0-10%. Land use/land cover in the watershed includes: 27.6% scrub/shrub land, 26.1% agricultural land, 24.9% forested land, 19.0% forested wetland, 1.4% nonforested wetland, 0.9% water, and 0.1% urban land.

This section of the Black River accepts drainage from its upstream reaches together with Church Branch, the Rocky Bluff Swamp Watershed, and Long Branch. Further downstream, Mill Branch, Tearcoat Branch (Davis Branch, Pen Branch), and Breakfast Branch (Crow Bay) enter the river. The river flows through the Black River Swamp throughout the watershed. There are a few recreational ponds (totaling 73.9 acres) and 275.7 stream miles in this watershed. The Black River is classified FW* (Dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.0) and the remaining streams in the watershed are classified FW.

Water Quality

Station #	Type	Class	Description
PD-116	S	FW*	BLACK RIVER AT S-14-40 E OF MANNING

Black River (PD-116) - Aquatic life uses are partially supported due to dissolved oxygen excursions, compounded by a significant decreasing trend in dissolved oxygen concentration. There is also a significant increasing trend in pH. This is a blackwater swamp system, characterized by naturally low dissolved oxygen concentrations; however, the decreasing trend in dissolved oxygen suggests that conditions are deteriorating. Recreational uses are fully supported; however, there is a significant increasing trend in fecal coliform bacteria concentration.

A fish consumption advisory has been issued by the Department for mercury and includes the Black River within this watershed (see advisory p.73).

Growth Potential

There is a low potential for growth in this watershed. Some growth may occur surrounding the interchanges of I-95 and the U.S. Hwy. 378 corridor. The remainder of the watershed is rural with agricultural and timberland uses.

03040205-080

(Pocotaligo River)

General Description

Watershed 03040205-080 is located in Sumter County and consists primarily of the ***Pocotaligo River*** and its tributaries from its origin to Turkey Creek. The watershed occupies 99,163 acres of the Upper Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Wagram-Lakeland-Rains series. The erodibility of the soil (K) averages 0.13; the slope of the terrain averages 6%, with a range of 0-25%. Land use/land cover in the watershed includes: 29.5% forested land, 28.8% agricultural land, 23.6% urban land, 12.4 scrub/shrub land, 4.4% forested wetland, 1.1% water, and 0.2% nonforested wetland.

Hatchet Camp Branch (McCray Lake) and Brunson Swamp (Elliott Lake, Burnt Gin Lake) merge to form Cane Savannah Creek (Nasty Branch, Red Oak Branch, Bush Bay, Bush Branch, Bethel Creek, Cain Millpond). Green Swamp accepts drainage from Horsepen Branch, Mush Swamp (Suicide Branch, Frierson Pond, Loring Millpond, Spann Branch, Long Branch, Booths Pond, Sawmill Pond, Cypress Bay, Second Millpond), and Shot Pouch Branch (Swan Lake). Green Swamp and Cane Savannah Creek join to form the headwaters of the Pocotaligo River near the City of Sumter, which then accepts drainage from Pocalla Creek (DesChamps Pond) and Turkey Creek. The headwaters of Brunson Swamp are within the Manchester State Forest, and Shaw Air Force Base lies between Mush Swamp and Long Branch. There are numerous recreational lakes and ponds (totaling 744.4 acres) and a total of 140.8 stream miles in this watershed. The Pocotaligo River, Pocalla Creek, Green Swamp, and Turkey Creek are classified FW* (Dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.0) and the remaining streams in the watershed are classified FW.

Water Quality

Station #	Type	Class	Description
PD-239	S	FW	NASTY BRANCH AT S-43-251 7.5 MILES SW OF SUMTER
PD-039	S	FW*	GREEN SWAMP AT S-43-33
PD-091	P	FW*	POCOTALIGO RIVER AT US 15 3.5 MILES S SUMTER
PD-098	S	FW*	TURKEY CK AT LIBERTY ST IN SUMTER BY SANTEE PRINT WORKS
PD-040	W	FW*	TURKEY CREEK AT US 521

Nasty Branch (PD-239) - Aquatic life uses are not supported due to dissolved oxygen excursions, compounded by a significant decreasing trend in dissolved oxygen concentration. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations; however, the decreasing trend in dissolved oxygen suggests that conditions are deteriorating. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Green Swamp (PD-039) - Aquatic life uses are not supported due to dissolved oxygen excursions, compounded by a significant decreasing trend in dissolved oxygen concentration and a significant increasing trend in turbidity. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations; however, the decreasing trend in dissolved oxygen suggests that conditions are deteriorating. Recreational uses are fully supported.

Pocotaligo River (PD-091) - Aquatic life uses are not supported due to dissolved oxygen excursions, compounded by a significant decreasing trend in dissolved oxygen concentration and a high concentration of copper measured in 1995. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations; however, the decreasing trend in dissolved oxygen suggests that conditions are deteriorating. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. PCB-1260 was detected in the 1994 sediment sample, very high concentrations of lead and zinc were measured in the 1996 sample, and a high concentration of zinc was measured in the 1998 sample. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Turkey Creek **-** There are two monitoring sites along Turkey Creek. Aquatic life uses are fully supported at both the upstream site ***(PD-098)*** and the downstream site ***(PD-040).*** This is a blackwater system, characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions occurred at both sites, they were typical of values seen in blackwater systems and were considered natural, not standards violations. A significant decreasing trend in turbidity at the upstream site suggests improving conditions for this parameter. A high concentration of zinc was measured in 1994 at the downstream site. Recreational uses are not supported at either site due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration at PD-098 suggests improving conditions for this parameter.

A fish consumption advisory has been issued by the Department for mercury and includes the Pocotaligo River within this watershed *(see advisory p.73).*

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
POCOTALIGO RIVER	SC0030724
CWS/POCALLA VILLAGE BELK	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.104	WATER QUALITY
WQL FOR DO,TRC,NH3N,BOD5	

CANE SAVANNAH CREEK	SC0023647
CITY OF SUMTER/TWIN LAKES SD	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.035	WATER QUALITY
WQL FOR DO,TRC,NH3N,BOD5	
CANE SAVANNAH CREEK	SC0000795
GOLD KIST/POULTRY PROCESSING	MAJOR INDUSTRIAL
PIPE #: 002 FLOW: 0.048	WATER QUALITY
WQL FOR DO,TRC,NH3N,BOD5	
MUSH SWAMP	SC0024970
USAF/SHAW AIR FORCE BASE	MINOR INDUSTRIAL
PIPE #: 03A FLOW: 0.72	EFFLUENT
PIPE #: 006 FLOW: 0.0864	EFFLUENT
PIPE #: 007 FLOW: 0.0576	EFFLUENT
MUSH SWAMP TRIBUTARY	SC0031704
HARWOOD MHP/HIGH HILLS RURAL	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.0072	WATER QUALITY
WQL FOR DO,TRC,NH3N,BOD5	
MUSH SWAMP	SC0031925
BURGESS GLEN MHP I	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.018	WATER QUALITY
WQL FOR DO,TRC,NH3N,BOD5	
MUSH SWAMP	SC0032239
BURGESS GLEN MHP II	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.018	WATER QUALITY
WQL FOR DO,TRC,NH3N,BOD5	
MUSH SWAMP	SC0032212
CAROLINA MOBILE COURT WWTP	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.030	WATER QUALITY
WQL FOR DO,TRC,NH3N,BOD5	
MUSH SWAMP	SCG730171
JOE SINGLETON MINE #4	MINOR INDUSTRIAL
PIPE #: 001 FLOW: M/R	EFFLUENT
MUSH SWAMP	SCG730197
LEE CONSTRUCTION COMPANY MINE	MINOR INDUSTRIAL
PIPE #: 001 FLOW: M/R	EFFLUENT
MUSH SWAMP	SC0040088
GLASSCOCK TRUCKING/G&K	MINOR INDUSTRIAL
PIPE #: 001 FLOW: M/R	WQL FOR BOD
PIPE #: 002 FLOW: M/R	EFFLUENT
LONG BRANCH	SC0024970
USAF/SHAW AIR FORCE BASE	MINOR INDUSTRIAL
PIPE #: 002 FLOW: M/R	EFFLUENT
PIPE #: 008 FLOW: M/R	EFFLUENT
NASTY BRANCH	SC0034860
PHIBRO-TECH INC.	MINOR INDUSTRIAL
PIPE #: 001 FLOW: M/R	EFFLUENT

NASTY BRANCH YUASA-EXIDE INC. PIPE #: 001 FLOW: M/R	SCG250010 MINOR INDUSTRIAL EFFLUENT
NASTY BRANCH TRIBUTARY GOLD KIST/POULTRY PROCESSING PIPE #: 001 FLOW: M/R	SCG250155 MINOR INDUSTRIAL EFFLUENT
POCALLA CREEK GOLD KIST/POULTRY PROCESSING PIPE #: 001 FLOW: 1.50 PIPE #: 001 FLOW: 0.466 (PROPOSED) WQL FOR DO,TRC,NH3N,BOD5	SC0000795 MAJOR INDUSTRIAL WATER QUALITY WATER QUALITY
POCALLA CREEK CRESCENT TOOLS/COOPER IND. PIPE #: 001 FLOW: 0.400	SCG250157 MINOR INDUSTRIAL EFFLUENT
POCALLA CREEK KAYDON CORPORATION PIPE #: 001 FLOW: M/R	SCG250132 MINOR INDUSTRIAL EFFLUENT
SPANN BRANCH BRIARCLIFF MHP PIPE #: 001 FLOW: 0.026 WQL FOR DO,TRC,NH3N,BOD5	SC0031844 MINOR DOMESTIC WATER QUALITY
TURKEY CREEK KORN INDUSTRIES/PLT 2 PIPE #: 001 FLOW: M/R	SCG250096 MINOR INDUSTRIAL EFFLUENT
TURKEY CREEK VAUGHAN-BASSETT FURNITURE CO. PIPE #: 001 FLOW: M/R	SCG250018 MINOR INDUSTRIAL EFFLUENT
TURKEY CREEK SOUTHEASTERN CHEM & SOLVENT CO. PIPE #: 001 FLOW: M/R	SCG250058 MINOR INDUSTRIAL EFFLUENT

Nonpoint Source Management Program

Camping Facilities

FACILITY NAME/TYPE ***RECEIVING STREAM***	***PERMIT #*** ***STATUS***
SHAROLYN FAMILY CAMPGROUND/FAMILY FRIERSON POND TO MUSH SWAMP	43-5203 ACTIVE

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
CAROLINA GOLDEN PRODUCTS INDUSTRIAL	IWP-013 ---------

PHIBRO TECH INC.	----------
INDUSTRIAL	----------
WEDGEWOOD DUMP	----------
----------	CLOSED
BURGESS BROGDEN C&D DUMP	----------
CONSTRUCTION	----------

Land Application Sites

LAND APPLICATION SYSTEM	***ND#***
FACILITY NAME	***TYPE***
SPRAYFIELD	ND0070173
USAF/SHAW AFB	INDUSTRIAL

Mining Activities

MINING COMPANY	***PERMIT #***
MINE NAME	***MINERAL***
GLASSCOCK TRUCKING CO., INC.	0646-85
SMG, INC. PIT	SAND
JOE SINGLETON CO.	1008-85
SINGLETON MINE #4	SAND/CLAY
LEE CONSTRUCTION CO.	0878-85
LEE CONSTRUCTION MINE #1	SAND/CLAY
BOYKIN LAND SCRAPING CO.	0651-85
SAND PIT	SAND/CLAY
APAC-CAROLINA, INC.	0087-85
ASPHALT PLANT #3	SAND
BROWN & MARTIN COMPANY	0418-85
BROWN & MARTIN MINE	SAND/CLAY

Growth Potential

There is a high potential for residential, commercial, and industrial growth in this watershed, which contains the majority of the City of Sumter and Shaw Air Force Base. Several major U.S. highways intersect in Sumter and increase the urban sprawl in every direction outside of the city. There are also several industrial parks and three rail lines.

03040205-090

(Pocotaligo River)

General Description

Watershed 03040205-090 is located in Clarendon and Sumter Counties and consists primarily of the ***Pocotaligo River*** and its tributaries from Turkey Creek to its confluence with the Black River. The watershed occupies 160,578 acres of the Upper Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Noboco-Bonneau-Lynchburg-Paxville-Rains series. The erodibility of the soil (K) averages 0.16; the slope of the terrain averages 2%, with a range of 0-10%. Land use/land cover in the watershed includes: 33.9% agricultural land, 27.7% scrub/shrub land, 24.7% forested land, 11.2% forested wetland (swamp), 1.4% urban land, 0.7% nonforested wetland (marsh), and 0.4% water.

This section of the Pocotaligo River accepts drainage from its upper reach together with Briar Branch, Boots Branch, Sammy Swamp (Boggy Swamp, Broadway Branch, Hungary Hall Branch, DesChamps Branch, Home Branch, Guckolds Branch), and Big Branch. Further downstream, another Big Branch enters the river followed by Bell Branch and Ox Swamp (Hog Branch, Lemon Branch, Fellowship Branch, Davis Branch, Loss Branch) near the City of Manning. Bear Creek enters the river next, followed by Deep Creek (Elwood Bay, Hog Bay, White Pond, Joes Branch), Juneburn Branch (Lightwood Knot Branch), Peddlers Branch, and Lakewood Creek (Lakewood Pond). The Pocotaligo River Watershed drains into the Black River. The western portion of the watershed is within the Manchester State Forest. There are several recreational ponds (totaling 206.2 acres) and 361.0 stream miles in this watershed. The Pocotaligo River is classified FW* (Dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.0) and the remaining streams in the watershed are classified FW.

Water Quality

Station #	Type	Class	Description
PD-202	P	FW*	POCOTALIGO RIVER AT S-43-32 9 MILES SSE OF SUMTER
PD-115	S	FW*	POCOTALIGO RIVER AT THIRD BRIDGE N OF MANNING ON US 301
PD-043	P	FW*	POCOTALIGO RIVER AT S-14-50 9.5 MILES NE MANNING

***Pocotaligo River* -** There are three monitoring sites along this section of the Pocotaligo River. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations. Past logging practices in the reach between PD-202 and PD-115 have exacerbated this condition by restricting flushing and removing the arboreal canopy that provided shading to the system. Beginning in 1994, the Pocotaligo Swamp Reclamation Project began restoring flow through the swamp and replanting of trees, which should result in improved water quality as the canopy is reestablished (See Pocotaligo Swamp Restoration Project, p.93).

Aquatic life uses are not supported at the furthest upstream site ***(PD-202)*** due to dissolved oxygen excursions, compounded by a significant increasing trend in total phosphorus concentration. There is a significant increasing trend in pH. A significant increasing trend in dissolved oxygen concentration and a significant decreasing trend in five-day biochemical oxygen demand suggest improving conditions for these parameters. Benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, fluoranthene, phenanthrene, pyrene, and benzo(a)anthracene were detected in the 1995 sediment sample, and P,P'DDT and P,P'DDE (metabolites of DDT) were detected in the 1996 sample. P,P'DDT, P,P'DDD, and P,P'DDE were detected in the 1997 sediment sample, and phenol and P,P'DDE were detected in the 1998 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are fully supported, and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

At the next site downstream **(PD-115)**, aquatic life uses are not supported due to dissolved oxygen excursions. There is a significant increasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported.

Aquatic life uses are fully supported at the downstream site ***(PD-043)***; however, there is a significant increasing trend in turbidity. There was also a high concentration of zinc measured in 1994. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. P,P'DDD, O,P'DDD, and P,P'DDE (metabolites of DDT) were detected in the 1994 sediment sample, P,P'DDT (another metabolite of DDT) was detected in the 1996 sample, P,P'DDT and P,P'DDE were detected in the1997 sample, and P,P'DDD and P,P'DDE were detected in the 1998 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

A fish consumption advisory has been issued by the Department for mercury and includes the Pocotaligo River within this watershed (see advisory p. 73).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
POCOTALIGO RIVER	SCG250120
GA PACIFIC CORP./ALCOLU PLT	MINOR INDUSTRIAL
PIPE #: 001 FLOW: M/R	EFFLUENT
POCOTALIGO RIVER	SC0027707
CITY OF SUMTER/POCOTALIGO RIVER PLANT	MAJOR DOMESTIC
PIPE #: 001 FLOW: 15.0	WATER QUALITY
WQL FOR DO,TRC,NH3N,BOD5	
POCOTALIGO RIVER	SC0020419

CITY OF MANNING WWTP PIPE #: 001 FLOW: 2.50 WQL FOR DO,TRC,NH3N,BOD5	MAJOR DOMESTIC WATER QUALITY

Nonpoint Source Management Program

Camping Facilities

FACILITY NAME/TYPE ***RECEIVING STREAM***	***PERMIT #*** ***STATUS***
CAMPERS PARADISE/FAMILY BELL BRANCH	14-0003 ACTIVE

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***		***PERMIT #*** ***STATUS***
GA PACIFIC CORP. INDUSTRIAL		IWP-148 ---------
GA PACIFIC CORP. C/C LANDFILL CONSTRUCTION	---------	143304-1201 (CWP-032)
BOB SPRINGERS LANDFILL INDUSTRIAL		IWP-183 ---------
MANNING DUMP --------		--------- CLOSED
PINEWOOD DUMP --------		--------- CLOSED
CLARENDON COUNTY LANDFILL MUNICIPAL		141001-1103 (DWP-058) CLOSED (ACTIVE)
CLARENDON COUNTY C&D LANDFILL CONSTRUCTION	---------	141001-1203
CLARENDON HUGO LANDFILL CONSTRUCTION	----------	141001-1202 (CWP-016)

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
J.F. CLECKLEY & CO. CALLOWAY PIT, MINE #2	0831-27 SAND

Growth Potential

There is a moderate to high potential for growth in this watershed, which includes the City of Manning and the Towns of Paxville and Pinewood. I-95 crosses the watershed near Manning, and other major roads running through Manning include U.S. Hwys. 15, 521, 301, and S.C. Hwys. 261 and 260.

Besides the rail line connecting the Cities of Manning and Sumter, the Clarendon County Industrial Park should encourage future industrial growth. The remainder of the watershed is rural with agricultural and timberland uses. There are plans for water to service the Towns of Pinewood and Paxville and the S.C. Hwy. 261 and U.S. Hwy. 15 corridors, which should encourage all forms of growth.

Watershed Protection and Restoration

Special Projects

Impact of Hog Lagoon Effluent and Turkey Litter on Loblolly Pine Stands in the Coastal Plain

Increased demand for forest products coincides with the increasing need to find alternative disposal/recycle/utilization options for various forms of animal waste including swine lagoon liquids and turkey litter. Currently, almost all of this animal waste is applied to agricultural land. Available land is becoming scarce in some localities of South Carolina, and forested land represents an additional source on which to dispose of the waste. When the waste is applied at an agronomic rate, a BMP for nonpoint source control is being utilized.

A loblolly pine plantation in Clarendon County is the project site for the application of liquid swine manure. The results of the first two applications of 120 lbs PAN/acre and 60 lbs PAN/acre are promising for the application of livestock waste to crops other than conventional agricultural row crops. Groundwater and soil are being monitored for major plant nutrients, copper, zinc, and arsenic. Sample results indicate concentrations well below permissible levels. The majority of the applied nutrients from the manure are accumulating in the top six inches of the soil profile. Implications of the project show a promising future for the establishment of an annual application rate that is environmentally safe, as shown by water and soil parameters.

Pocotaligo Swamp Restoration Project

Prior to 1950, the Pocotaligo Swamp was noted as a river-swamp system with many well-defined flowing streams, and dominated by a dense community of water tupelo and bald cypress trees. In the 1950’s and early 1960’s, most of the trees were harvested from the swamp north of U.S. Hwy. 301. Clear-cut logging operations left access roads across the swamp which blocked stream channels and water flow within the swamp. Water levels in the swamp increased, which suppressed and prevented natural tree regeneration. This shallow, permanent flooding provided ideal conditions for aquatic weeds to grow. These aquatic weeds further reduced water flow and increased flood levels. Most of the weeds die back in the winter, and the onset of decay begins during the following summer. This decay process causes a significant increase in the biochemical oxygen demand and results in oxygen deficits that are lethal to many species of fish and aquatic life.

The objective of this project was to restore, on an experimental basis, the natural wetland environment in parts of the Pocotaligo Swamp. The initial goal of the project was to reestablish the natural water flow patterns within the swamp. This was accomplished by identifying, locating, and inventorying old stream channels and removing blockages.

In June 1995, a reconnaissance study was completed by the U.S. Army Corps of Engineers to determine the extent and range of degradation that has occurred within the Pocotaligo Swamp. In addition, a study was completed by the University of South Carolina, that focused on the impacts of the logging roads and nutrient loading within the swamp. According to these studies, the construction of over 35 logging roads in the 1950's obstructed the natural water flow of the swamp. Both reports emphasized the importance of removing these flow restrictions within the swamp.

In May of 1996, the present water flow channels in Pocotaligo Swamp were identified using aerial reconnaissance. With the assistance of SCDNR and the USDA Natural Resources Conservation Service, major stream channels were located and permanently marked with the global positioning system. The aerial study provided very useful information in assisting the ground teams in locating stream channels. The stream channel study revealed that excessive aquatic vegetation was obstructing water flow in many areas of the swamp. As stream channels are cleared of obstructions it is projected that the water velocity will increase and streams will become more defined as they erode to accommodate the increased flow.

In an effort to restore the natural tree canopy within the swamp, ten sites were selected for demonstration tree plantings. In 1995, 350 bare rooted, bald cypress trees were planted in 1-3 feet of water and through thick aquatic vegetation. In January of 1996, an additional 238 root pruned bald cypress and 71 containerized water tupelo were planted in additional areas. Long term monitoring of these test plots, along with additional planting, will provide valuable information on restoration of other flooded freshwater wetland sites. Technical guidance and field assistance for these tree test plots was provided by Clemson University, which plans to monitor tree growth and survival after the project is complete.

The South Carolina Department of Health and Environmental Control developed a water quality monitoring plan to determine the impact of blockage removal on water quality. In March of 1995, SCDHEC began monthly monitoring for dissolved oxygen and stream flow within Pocotaligo Swamp. The second year of sampling ended in February 1997. Preliminary review of the data indicates that due to the breaching of the tram roads and the spraying of the aquatic vegetation, flushing of the swamp has increased. With the increased flushing, dissolved oxygen levels on the average have increased throughout the swamp, along with decreased water levels. These factors should make conditions much more conducive for the replanting effort that is underway in selected areas of the swamp.

03040205-100

(Black River)

General Description

Watershed 03040205-100 is located in Williamsburg and Clarendon Counties and consists primarily of the ***Black River*** and its tributaries from the Pocotaligo River to Pudding Swamp. The watershed occupies 21,759 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Lynchburg-Hobcaw-Foreston series. The erodibility of the soil (K) averages 0.10; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 41.5% forested land, 22.5% agricultural land, 23.0% forested wetland (swamp), 12.8% scrub/shrub land, 0.1% urban land, and 0.1% nonforested wetland (marsh).

This section of the Black River accepts drainage from its upper reaches together with Broad Branch, Mill Branch (Conyers Bay), and another Mill Branch. There are a total of 45.2 stream miles in this watershed, and a few ponds totaling 49.0 acres. The Black River is classified FW* (Dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.0) and the remaining streams are classified FW.

Water Quality

Station #	Type	Class	Description
PD-227	P	FW*	BLACK RIVER AT S-45-35 8.6 MILES NW OF KINGSTREE

Black River (PD-227) - Aquatic life uses are fully supported. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. P,P'DDT (a metabolite of DDT) and the pesticide chlordane were detected in the 1997 sediment sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

A fish consumption advisory has been issued by the Department for mercury and includes the Black River within this watershed (see advisory p.73).

Growth Potential

There is a low potential for growth in this watershed. There is no existing water or sewer infrastructure in the watershed.

03040205-110

(Pudding Swamp)

General Description

Watershed 03040205-110 is located in Clarendon, Sumter, and Lee Counties and consists primarily of ***Pudding Swamp*** and its tributaries. The watershed occupies 119,907 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Lynchburg-Fuquay-Rains-Goldsboro-Noboco series. The erodibility of the soil (K) averages 0.14; the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 35.4% forested land, 29.5% agricultural land, 19.3% scrub/shrub land, 13.6% forested wetland, 1.5% nonforested wetland, 0.6% water, and 0.1% urban land.

Pudding Swamp accepts drainage from Hope Swamp (Threemile Branch), Trustless Branch, and Horse Branch (Fuller Bay, Cypress Lake) before merging with Douglas Swamp. Douglas Swamp flows past Woods Bay State Park and accepts drainage from Woods Bay, Cypress Branch (Bushy Branch), Burnt Branch, and Rose Creek. Downstream of the confluence, Newman Branch (Cain Branch) flows into Pudding Swamp. The Pudding Swamp Watershed drains into the Black River. There are 226.9 stream miles in this watershed and several lakes and ponds totaling 175.8 acres. Pudding Swamp, Douglas Swamp, and Cypress Branch are classified FW* (Dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.0) and the remaining streams in the watershed are FW.

Water Quality

Station #	Type	Class	Description
PD-203	S	FW*	PUDDING SWAMP AT SC 527 8.1 MILES NW OF KINGSTREE

Pudding Swamp (PD-203) - Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
PUDDING SWAMP S.C. HWY. DEPT./REST AREA I-95 PIPE #: 001 FLOW: 0.04 WQL FOR DO,TRC,NH3N	SC0038962 MINOR DOMESTIC WATER QUALITY

PUDDING SWAMP GERALD SMITH/JERRY'S POND MINE PIPE #: 001 FLOW: M/R	SCG730198 MINOR INDUSTRIAL EFFLUENT
PUDDING SWAMP KEELS KIRBY/DOUBLE 'K' MINE PIPE #: 001 FLOW: M/R	SCG730201 MINOR INDUSTRIAL EFFLUENT
HORSE BRANCH TOWN OF TURBEVILLE WWTP PIPE #: 001 FLOW: 0.60 WQL FOR TRC,NH3N,BOD5	SC0025755 MINOR DOMESTIC WATER QUALITY
SPRAY FIELD-HORSE BRANCH TOWN OF TURBEVILLE PIPE #: 002 FLOW: 0.45/0.6 WQL FOR TRC	SC0025755 MINOR DOMESTIC WATER QUALITY

Growth Potential

There is a low to moderate potential for growth in this watershed, which contains the Towns of Turbeville and Olanta, and portions of the I-95 and U.S. Hwy. 378 corridors. The I-95/U.S. Hwy. 378 interchange now has water and sewer service and is expected to see moderate to high growth. Water and sewer services are available in and around the Towns of Olanta and Turbeville, and should encourage growth. The remainder of the watershed is rural with agricultural and timberland uses.

03040205-120

(Black River)

General Description

Watershed 03040205-120 is located in Williamsburg and Clarendon Counties and consists primarily of the ***Black River*** and its tributaries from Pudding Swamp to the Kingstree Swamp Canal. The watershed occupies 31,331 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Foreston-Lynchburg-Hobcaw-Goldsboro series. The erodibility of the soil (K) averages 0.15; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 37.9% agricultural land, 35.6% forested land, 16.0% forested wetland (swamp), and 10.5% scrub/shrub land.

This section of the Black River accepts drainage from its upper reaches and Clapp Swamp (Long Branch, Bull Branch, Spring Branch). There are 39.6 stream miles in this watershed and a few ponds totaling 2.8 acres. The Black River is classified FW* (Dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.0) and the remaining streams are classified FW.

Water Quality

No water quality monitoring occurred in this watershed**.**

A fish consumption advisory has been issued by the Department for mercury and includes the Black River within this watershed (see advisory p.73).

Nonpoint Source Management Program

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
WILLIAMSBURG COUNTY JOHN MIXON PIT	0604-89 SAND/CLAY
WILLIAMSBURG COUNTY REA MIMS PIT	0591-89 SAND/CLAY
S.C. PRESTRESS CORP. MCKENZIE PIT #2	0838-89 SAND
527 DIRT CO. 527 DIRT MINE	1153-89 SAND

Growth Potential

There is a low potential for growth in this watershed, except for the area near the Town of Kingstree, which could benefit from the water and sewer infrastructure located there.

03040205-130

(Kingstree Swamp Canal)

General Description

Watershed 03040205-130 is located in Williamsburg, Florence, and Clarendon Counties and consists primarily of ***Kingstree Swamp Canal*** and its tributaries. The watershed occupies 44,202 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Lynchburg-Foreston-Fuquay-Rains-Goldsboro series. The erodibility of the soil (K) averages 0.14; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 41.1% agricultural land, 37.4% forested land, 18.1% scrub/shrub land, 3.2% forested wetland (swamp), and 0.2% urban land.

Kingstree Swamp Canal accepts drainage from several bays before draining into the Black River, including Smiths Bay, Findley Bay, and Sandy Bay. There are a total of 67.1 stream miles in this watershed and several ponds (totaling 20.2 acres), all classified FW.

Water Quality

Station #	Type	Class	Description
PD-358	W	FW	KINGSTREE SWAMP CANAL AT SC 527

***Kingstree Swamp Canal (PD-358)* -** Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH and dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are fully supported.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
KINGSTREE SWAMP CANAL TRIBUTARY FERMPRO MANUFACTURING LP PIPE #: 01/02 FLOW: 2.455	SC0003123 MINOR INDUSTRIAL EFFLUENT

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
WILLIAMSBURG COUNTY LANDFILL #1 INDUSTRIAL	IWP-114 --------

FERMPRO MANUFACTURING	453305-1601 (IWP-084)
INDUSTRIAL	--------

Growth Potential

There is a moderate potential for growth in this watershed, which contains a portion of the Town of Kingstree. The Kingstree area and the area abutting U.S. Hwy. 52 contain water and sewer infrastructure. The U.S. Hwy. 52 corridor has the potential for residential, commercial, and industrial growth in the future due to the combination of an increase in the capacity of the sewage treatment plant, one existing and two new proposed industrial areas, and an existing rail line. Outside of this area, the watershed is rural with predominately agricultural and timberland uses.

03040205-140

(Black River)

General Description

Watershed 03040205-140 is located in Williamsburg County and consists primarily of the ***Black River*** and its tributaries from the Kingstree Swamp Canal to an unnamed tributary near the S.C. Hwy. 30 crossing. The watershed occupies 134,011 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Goldsboro-Lynchburg-Hobcaw-Emporia series. The erodibility of the soil (K) averages 0.20; the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 40.1% forested land, 28.7% agricultural land, 16.8% scrub/shrub land, 14.0% forested wetland (swamp), 0.2% nonforested wetland (marsh), 0.1% urban land, and 0.1% water.

This section of the Black River accepts drainage from its upper reaches and Laws Swamp. Rocky Ford Swamp (Chaney Swamp) and Dickey Swamp (Mulberry Branch, Bennett Swamp, Mill Branch, Pushing Branch, Shanty Branch) join to form Laws Swamp, which flows into the river downstream of the Kingstree Swamp Canal. Further downstream, the river accepts drainage from Thorntree Swamp, Stony Run Branch, Boggy Swamp, McElroy Branch, Camden Swamp, and Ox Swamp (Gumtree Branch). There are 108.4 stream miles and a few ponds and lakes (totaling 114.1 acres) in this watershed. The Black River is classified FW* (Dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.0) and the remaining streams are classified FW.

Water Quality

Station #	Type	Class	Description
PD-044	S	FW*	BLACK RIVER AT US 52 AT KINGSTREE
PD-045	S	FW*	BLACK RIVER AT SC 377 AT BRYAN'S CROSS ROADS
(PD-359)	W	FW*	BLACK RIVER AT S-45-30

Black River - There are two monitoring sites along this section of the Black River. At the upstream site ***(PD-044)***, aquatic life uses are fully supported. Recreational uses are partially supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria concentration. At the downstream site ***(PD-045)***, aquatic life uses are fully supported; however, there is a significant increasing trend in turbidity. There is a significant increasing trend in pH. Recreational uses are fully supported.

Station ***PD-359*** is physically located in the Black River watershed 03040205-150, but also reflects the influence from this watershed drainage. Aquatic life and recreational uses are fully supported at PD-359.

A fish consumption advisory has been issued by the Department for mercury and includes the Black River within this watershed (see advisory p.73).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
BLACK RIVER MILLIKEN & CO./KINGSTREE MILL PIPE #: 001 FLOW: 0.373 WQL FOR DO,TRC,NH3N,BOD5	SC0023493 MINOR INDUSTRIAL WATER QUALITY
BLACK RIVER TOWN OF KINGSTREE PIPE #: 001 FLOW: 2.15 WQL FOR DO,TRC,NH3N,BOD5	SC0035971 MAJOR DOMESTIC WATER QUALITY

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
WILLIAMSBURG COUNTY LANDFILL #2 MUNICIPAL	DWP-133 CLOSED
WILLIAMSBURG CO. INDUSTRIAL LANDFILL #2 MUNICIPAL	IWP-153 ----------
WILLIAMSBURG COUNTY LANDFILL MUNICIPAL	451001-1101 ACTIVE
WILLIAMSBURG COUNTY C&D LANDFILL CONSTRUCTION	451001-1201 ----------
WILLIAMSBURG COUNTY SHREDDER MUNICIPAL SHREDDER SITE	DWP-055 CLOSED
TOWN OF KINGSTREE DUMP#1 MUNICIPAL	----------- CLOSED
TOWN OF KINGSTREE DUMP #2 MUNICIPAL	----------- CLOSED

Growth Potential

There is a low to moderate potential for growth in this watershed, which contains the Town of Lane and portions of the Towns of Kingstree and Greeleyville. Water infrastructure is located in and around all three towns, but sewerage infrastructure is located only in and around the Kingstree area. Outside of the towns, the area is predominately rural with mostly agricultural and timberland uses.

03040205-150

(Black River)

General Description

Watershed 03040205-150 is located in Williamsburg and Georgetown Counties and consists primarily of the ***Black River*** and its tributaries from an unnamed tributary near the S.C. Hwy. 30 crossing to Black Mingo Creek. The watershed occupies 140,788 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Yemassee-Yauhannah-Bladen-Wahee series. The erodibility of the soil (K) averages 0.16; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 55.6% forested land, 17.9% forested wetland (swamp), 13.7% agricultural land, 10.7% scrub/shrub land, 0.9% nonforested wetland (marsh), 0.8% urban land, and 0.4% water.

This section of the Black River accepts drainage from its upper reaches, together with Spring Branch, Spring Gully, Jumping Gully, Thompson Swamp, Birch Creek (Dobson Branch, Dobson Bay), and Gin Branch. Flat Swamp (Camp Pond Bay, Ricefield Bay, Alligator Bay, Log Branch) flows into Johnsons Swamp (Oakridge Bay, Mill Branch, Murray Swamp, Sportsman Pond), which in turn flows into Horse Pen Swamp before draining into the Black River downstream of Gin Branch. Further downstream, Big Dam Swamp (Roper Branch, Sleeper Branch, Cedar Patch Branch, Brightman Swamp) enters the river followed by Lester Creek, Puncheon Creek, and Indian Hut Swamp. There are 169.0 stream miles in this watershed and several ponds totaling 81.7 acres. The Black River is classified FW* (Dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.0) and the remaining streams in the watershed are classified FW.

Water Quality

Station #	Type	Class	Description
PD-359	W	FW*	BLACK RIVER AT S-45-30
PD-170	P	FW*	BLACK RIVER AT SC 51 11.6 MILES NE OF ANDREWS

Black River* -** There are two monitoring sites along this section of the Black River. Aquatic life and recreational uses are fully supported at the upstream site ***(PD-359). Station ***PD-359*** is physically located in this watershed, but also reflects the influence of drainage from upstream watershed 03040205-140.

Aquatic life uses are not supported at the downstream site ***(PD-170)*** due to occurrences of zinc in excess of the aquatic life acute standards, compounded by a significant increasing trend in turbidity. There was also a very high concentration of chromium measured in 1998. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. The pesticide endrin was detected in the 1995 sediment sample. Recreational uses are fully supported; however, there is a significant increasing trend in fecal coliform bacteria concentration.

The Black River was treat with aquatic herbicides from 1992-1995 to remove aquatic plants from boat ramp areas. The treatments were successful and no additional treatments have been necessary.

A fish consumption advisory has been issued by the Department for mercury and includes the Black River within this watershed (see advisory p.73).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM / FACILITY NAME / PERMITTED FLOW @ PIPE (MGD) / COMMENT	NPDES# / TYPE / LIMITATION
BLACK RIVER TOWN OF ANDREWS WWTP PIPE #: 002 FLOW: 2.0/2.5 PIPE #: 003 FLOW: 2.0/2.5 WQL FOR DO,TRC,NH3N,BOD5	SC0025135 MAJOR DOMESTIC WATER QUALITY WATER QUALITY
BLACK RIVER TRIBUTARY STONE CONSTRUCTION CO. PIT PIPE #: 001 FLOW: M/R	SCG730006 MINOR INDUSTRIAL EFFLUENT
LESTER CREEK TOWN OF ANDREWS WWTP PIPE #: 001 FLOW: 2.0/2.5 WQL FOR DO,TRC,NH3N,BOD5	SC0025135 MAJOR DOMESTIC WATER QUALITY
INDIAN HUT SWAMP INTERNATIONAL PAPER, INC./SAMPIT LUMBER MILL PIPE #: 001 FLOW: 0.34 WQL FOR TRC,NH3N	SC0046582 MINOR INDUSTRIAL WATER QUALITY
JOHNSONS SWAMP ELF ATOCHEM NORTH AMERICA/ANDREWS PIPE #: 001 FLOW: 0.213 WQL FOR DO,TRC,NH3N,BOD5	SC0001619 MINOR INDUSTRIAL WATER QUALITY

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME / FACILITY TYPE	PERMIT # / STATUS
ANDREWS WIRE LANDFILL INDUSTRIAL	IWP-140 ----------
ANDREWS WIRE LANDFILL INDUSTRIAL	IWP-164 ----------

Mining Activities

MINING COMPANY	***PERMIT #***
MINE NAME	***MINERAL***
STONE CONSTRUCTION CO.	0598-89
ANDREWS MINE	SAND

Water Supply

Portions of this watershed fall within the Waccamaw Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.23).

Growth Potential

The Town of Andrews is located in this watershed, and has both water and sewer infrastructure and a rail line which should allow low to moderate growth. Outside of the Andrews area, the watershed is rural with mostly agricultural and timberland uses.

03040205-160

(Black Mingo Creek)

General Description

Watershed 03040205-160 is located in Williamsburg County and consists primarily of ***Black Mingo Creek*** and its tributaries from its origin to Indiantown Swamp. The watershed occupies 81,443 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Yemassee-Yauhannah-Emporia-Ogeechee series. The erodibility of the soil (K) averages 0.17; the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 32.0% agricultural land, 26.1% forested land, 23.1% scrub/shrub land, 18.4% forested wetland (swamp), 0.3% nonforested wetland (marsh), and 0.1% barren land.

Cedar Swamp (Orr Swamp, Home Swamp, Dry Swamp, The Morass, Pine Island Bay) and Parsley Swamp (Whiteoak Swamp, McKnight Swamp) join to form the headwaters of Black Mingo Creek. Downstream of the confluence, Black Mingo Creek accepts drainage from Turkey Creek, Boggy Swamp, and Indiantown Swamp (James Branch, Pointer Stump Branch). There are several recreational lakes and ponds (totaling 57.4 acres) in this watershed and a total of 79.2 stream miles, all classified FW.

Water Quality

No water quality monitoring occurred in this watershed.

A fish consumption advisory has been issued by the Department for mercury and includes Black Mingo Creek within this watershed (see advisory p.73).

Nonpoint Source Management Program

Land Disposal Activities

Land Application Sites

LAND APPLICATION SYSTEM ***FACILITY NAME***	***ND#*** ***TYPE***
SPRAYFIELD HOUSE OF RAEFORD FARMS, INC.	ND0068161 INDUSTRIAL

Growth Potential

There is a low potential for growth in this watershed, which contains the Town of Stuckey. Water infrastructure is available around the Town of Stuckey, but there is no sewerage infrastructure available in the watershed. Agriculture and timberlands are the primary land uses.

03040205-170

(Black Mingo Creek)

General Description

Watershed 03040205-170 is located in Williamsburg and Georgetown Counties and consists primarily of ***Black Mingo Creek*** and its tributaries from Indiantown Swamp to its confluence with the Black River. The watershed occupies 79,350 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Yemassee-Yauhannah-Bladen-Emporia-Ogeechee series. The erodibility of the soil (K) averages 0.15; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 55.4% forested land, 17.0% agricultural land, 14.7% forested wetland (swamp), 12.2% scrub/shrub land, 0.5% nonforested wetland (marsh), 0.1% water, and 0.1% urban land.

This section of Black Mingo Creek accepts drainage from its upstream reach, together with Wilson Lake, Gully Branch, Headless Creek, Snow Branch, and Campbell Swamp (Hickory Nut Branch). Johnson Branch enters the system next, followed by Walden Branch, Poplar Hill Branch (Caney Branch, Waterman Branch, Hughs Branch), Rome Branch, Burnett Swamp, and Jacks Creek. Further downstream, Browns Branch (Squirrel Run, Church Branch, Pittman Branch) flows into Black Mingo Creek followed by Peters Creek, Smith Swamp (Black Steer Swamp, McGinney Creek), Cold Creek, Mingo Swamp, and Schoolhouse Branch. The Black Mingo Creek Watershed flows into the Black River. There are several lakes and ponds (totaling 165.9 acres) in this watershed and a total of 129.2 stream miles, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-360	W	FW	BLACK MINGO CREEK AT S-45-121
PD-361	S	FW	BLACK MINGO CREEK AT COWHEAD LANDING OFF SC 51

Black Mingo Creek* -** There are two monitoring sites along this section of Black Mingo Creek and recreational uses are fully supported at both sites. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. At the upstream site ***(PD-360), aquatic life uses are not supported due to dissolved oxygen excursions. Although this is a blackwater system, the dissolved oxygen concentrations were inordinately low. Aquatic life uses are fully supported at the downstream site ***(PD-361)***. Although pH and dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter.

A fish consumption advisory has been issued by the Department for mercury and includes Black Mingo Creek within this watershed (see advisory p.73).

Water Supply

Portions of this watershed fall within the Waccamaw Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.23).

Growth Potential

There is a low potential for growth in this watershed, which is adjacent to the Town of Stuckey. Water infrastructure is available around Stuckey as well as the portion of the watershed located in Georgetown County.

03040205-180

(Black River)

General Description

Watershed 03040205-180 is located in Georgetown County and consists primarily of the ***Black River*** and its tributaries from Black Mingo Creek to its confluence with the Pee Dee River. The watershed occupies 86,488 acres of the Lower Coastal Plain and Coastal Zone regions of South Carolina. The predominant soil types consist of an association of the Yemassee-Yauhannah-Levy-Bladen-Wahee series. The erodibility of the soil (K) averages 0.20; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 74.2% forested land, 13.6% forested wetland (swamp), 4.9% scrub/shrub land, 2.8% water, 2.5% nonforested wetland (marsh), and 2.0% agricultural land.

This section of the Black River accepts drainage from its upstream reaches, together with Mill Grove Creek, Lanes Creek, Choppee Creek (Stony Run Creek, Machine Bay), Boheck Creek, and Post Foot Branch. Carvers Bay drains into Big Branch (Millpond Branch), then flows into Carvers Bay Creek, which merges with Fardick Creek to form Peters Creek (Simmons Creek, Guinea Creek, Black Swamp) and drains into the river downstream of Post Foot Branch. Sixmile Creek (Gapway Bay, Greens Creek, Prince Creek, Crooked Branch, Inland Branch) enters the river next followed by Cottage Creek and Longwater Bay. There are several ponds (totaling 132.1 acres) in this watershed, and a total of 110.3 stream miles and 763.3 acres of estuarine areas. The Black River upstream of the crossing of U.S. Hwy. 701 (just upstream of Sixmile Creek) is classified FW* (Dissolved Oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5) and its tributaries are classified FW. Downstream of the crossing, the Black River and its tributaries are classified SA. The Black River Watershed drains into the Pee Dee River.

Water Quality

Station #	Type	Class	Description
PD-325	P	SA	BLACK RIVER AT S-22-489 4 MILES NE GEORGETOWN

Black River (PD-325) - Aquatic life uses are fully supported; however, there was a very high concentration of zinc measured in 1995. This is a tidally influenced system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH and dissolved oxygen excursions occurred, they were typical of values seen in tidally influenced systems with significant marsh and swamp drainage and were considered natural, not standards violations. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are fully supported.

A fish consumption advisory has been issued by the Department for mercury and includes the Black River within this watershed (see advisory p.73).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
BLACK RIVER	SC0029505
GCW&SD/WEDGEFIELD PLANTATION	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.4	WATER QUALITY
WQL FOR DO	
LANES CREEK	SC0039781
GCSD/BROWNS FERRY SCHOOL	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.0028	WATER QUALITY
WQL FOR DO,TRC,NH3N,BOD5	
CHOPPEE CREEK	SC0033081
GCSD/CHOPPEE SCHOOL	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.01	EFFLUENT

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME	***PERMIT #***
FACILITY TYPE	***STATUS***
GEORGETOWN COUNTY LANDFILL	DWP-059
MUNICIPAL	CLOSED
GEORGETOWN SUBTITLE D LANDFILL	221001-1102
--------	OPEN
GEORGETOWN COUNTY LANDFILL	221001-1101
MUNICIPAL	CLOSED
GEORGETOWN SUBTITLE D LANDFILL	IWP-231
INDUSTRIAL	---------
GEORGETOWN COUNTY C/C LANDFILL	221001-1201 (CWP-027)
CONSTRUCTION	---------
GEORGETOWN COUNTY C&D LANDFILL	221001-1202
CONSTRUCTION	--------

Mining Activities

MINING COMPANY	***PERMIT #***
MINE NAME	***MINERAL***
GROUND IMPROVEMENT TECHNIQUES	1093-43
GEORGETOWN COUNTY LANDFILL SAND/CLAY MINE	SAND/CLAY
SARA SMITH CAHALAN	1061-43
MANSFIELD	SAND/CLAY
WILLIAM T. SHADER	1095-43

Water Supply

Portions of this watershed fall within the Waccamaw Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.23).

Growth Potential

There is a low potential for growth in this watershed. Water is available along most roads in the area, but there is no sewerage infrastructure. Transportation studies are being completed analyzing the possibility of using S.C. Hwy. 701 as an alternate route to U.S. Hwy. 17. If this project is approved and completed, the area along S.C. Hwy. 701 will likely see a significant increase in residential and commercial development.

Pee Dee River Basin Description

The ***Pee Dee River Basin*** (also referred to as the Great Pee Dee River) encompasses 27 watersheds and 3,425 square miles within South Carolina, excluding the Lynches River and Black River Basins. The Pee Dee River flows across the Sandhills region to the Upper and Lower Coastal Plain regions and into the Coastal Zone region. Of the approximately two million acres, 36.0% is forested land, 23.0% is agricultural land, 19.6% is scrub/shrub land, 16.5% is forested wetland (swamp), 2.5% is urban land, 1.3% is water, 1.0% is nonforested wetland (marsh), and 0.1% is barren land. The urban land percentage is comprised chiefly of the Cities of Florence, Darlington, Bennettsville, and Dillon. In the Pee Dee River Basin, there are approximately 3,472 stream miles, 9,969 acres of lake waters, and 1,522 acres of estuarine areas. The Pee Dee River flows across the North Carolina/South Carolina state line and accepts drainage from Thompson Creek, Crooked Creek, Cedar Creek, Three Creeks, and Black Creek. The Pee Dee River then accepts drainage from Jeffries Creek, Catfish Creek, the Lynches River Basin, the Little Pee Dee River, and the Black River Basin before draining into Winyah Bay.

Physiographic Regions

The State of South Carolina has been divided into six Major Land Resource Areas (MLRAs) by the USDA Soil Conservation Service. The MLRAs are physiographic regions that have soils, climate, water resources, and land uses in common. The physiographic regions that define the Pee Dee River Basin are as follows:

The **Sandhills** are an area of gently sloping to strongly sloping uplands with a predominance of sandy areas and scrub vegetation; elevations range from 250 to 450 feet.

The **Upper Coastal Plain** is an area of gentle slopes with increased dissection and moderate slopes in the northwestern section that contain the State's major farming areas; elevations range from 100 to 450 feet.

The **Lower Coastal Plain** is an area that is mostly nearly level and is dissected by many broad, shallow valleys with meandering stream channels; elevations range from 25 to 125 feet.

The **Coastal Zone** is a mostly tidally-influenced area that is nearly level and dissected by many broad, shallow valleys with meandering stream channels; most of the valleys terminate in tidal estuaries along the coast; elevations range from sea level to about 25 feet.

Land Use/Land Cover

General land use/land cover data for South Carolina were derived from SCDNR 1990 SPOT multispectral satellite images using image mapping software to inventory the State's land classifications, which are as follows.

Urban land is characterized by man-made structures and artificial surfaces related to industrial, commercial, and residential uses, as well as vegetated portions of urban areas.

Agricultural/Grass land is characterized by cropland, pasture, and orchards and may include some grass cover in urban, scrub/shrub and forest areas.

Scrub/Shrub land is adapted from the western Rangeland classification to represent the "fallow" condition of the land (currently unused, yet vegetated), and is most commonly found in the dry Sandhills region including areas of farmland, sparse pines, regenerating forest lands, and recently harvested timber lands.

Forest land is characterized by deciduous and evergreen trees not including forests in wetland settings.

Forested Wetland (swampland) is the saturated bottomland, mostly hardwood forests that are primarily composed of wooded swamps occupying river floodplains and isolated low-lying wet areas, primarily located in the Coastal Plain.

Nonforested Wetland (marshland) is dependent on soil moisture to distinguish it from scrub/shrub since both classes contain grasses and low herbaceous cover; nonforested wetlands are most common along the coast and isolated freshwater areas found in the Coastal Plain.

Barren land is characterized by an unvegetated condition of the land, both natural (rock, beaches and unvegetated flats) and man-induced (rock quarries, mines, and areas cleared for construction in urban areas or clearcut forest areas).

Water (non-land) includes both fresh and tidal waters.

Soil Types

The dominant soil associations, or those soil series comprising, together, over 40% of the land area, were recorded for each watershed in percent descending order. The individual soil series for the Pee Dee River Basin are described as follows.

Alpin soils are well drained and excessively drained, sandy soils with a loamy or sandy subsoil.

Aycock soils are nearly level to gently sloping, well drained soils on Coastal Plain uplands, grayish brown in color and a very fine sandy loam.

Bonneau soils are deep, moderately well drained soils with loamy subsoil on ridges.

Candor soils are somewhat excessively drained soils that formed in sandy and loamy marine sediments on broad flats, narrow ridges, and side slopes.

Cantey soils are moderately well drained soils with a loamy surface layer and a clayey or loamy subsoil and poorly drained soils with a loamy surface layer and a clayey subsoil.

Chastain soils are poorly drained to well drained soils that are clayey or loamy throughout and are subject to flooding.

Coxville soils are deep, poorly drained soils in thick beds of clayey sediment, nearly level.

Dorovan soils are deep, level, very poorly drained, organic soils on floodplains adjacent to upland.

Fuquay soils are well drained, loamy and sandy soils with clayey or loamy subsoil.

Goldsboro soils are moderately well to poorly drained soils with loamy subsoil on nearly level ridges and in shallow depressions.

Johnston soils are nearly level, moderately well drained to very poorly drained soils, loamy throughout with a sandy surface layer on floodplains.

Lakeland soils are well drained, sandy soils with loamy subsoil and excessively drained soils.

Levy soils are nearly level, very poorly drained soils, mucky throughout or loamy and underlain with clayey layers, rarely or frequently flooded with fresh water.

Lynchburg soils are moderately well to poorly drained soils, with loamy subsoil, on nearly level ridges and in shallow depressions.

Meggett soils are poorly drained to very poorly drained, level to nearly level soils with a loamy to sandy surface layer and a loamy to clayey subsoil.

Nansemond soils are moderately well drained, rapidly permeable soils that formed in loamy Coastal Plain sediments on stream terraces and adjacent to small drainages.

Noboco soils are well drained, sandy soils with a loamy or clayey subsoil.

Norfolk soils are deep, well drained soils, with loamy subsoil, nearly level and gently sloping elevated uplands.

Pelion soils are well drained and moderately well drained soils that have a sandy surface layer and a loamy subsoil, many with a fragipan in the subsoil.

Persanti soils are deep, moderately well drained, slowly permeable soils that formed in clayey marine sediment, found on broad estuary terraces.

Rains soils are moderately well to poorly drained soils, with a loamy subsoil, on nearly level ridges and in shallow depressions.

Rutledge soils are somewhat poorly drained to moderately well drained, nearly level, sandy soils on ridges and poorly drained to very poorly drained, sandy soils in depressions.

Smithboro soils are deep, somewhat poorly drained, slowly permeable soils that formed in clayey marine sediment, found on the Coastal Plain on broad estuary terraces.

Tatum soils are dominantly sloping to steep, well drained to excessively drained soils, with a loamy subsoil, moderately deep or shallow to weathered rock.

Tawcaw soils are poorly drained to well drained soils that are clayey or loamy throughout and are subject to flooding.

Troup soils are well drained, sandy soils with loamy subsoil and excessively drained soils.

Wagram soils are well drained to very poorly drained, depressional to nearly level and gently sloping soils with a loamy to sandy surface layer and a clayey to loamy subsoil.

Woodington soils are poorly drained, moderately permeable soils that formed in loamy Coastal Plain sediments on stream terraces and upland flats on higher elevations.

Yauhannah soils are poorly drained to moderately well drained soils with a loamy subsoil, on nearly level ridges and in shallow depressions.

Yemassee soils are poorly drained to moderately well drained soils with a loamy subsoil, on nearly level ridges and in shallow depressions.

Yonges soils are moderately well drained to poorly drained, nearly level soils with a sandy surface layer and a predominantly loamy subsoil.

Slope and Erodibility

The definition of soil erodibility differs from that of soil erosion. Soil erosion may be more influenced by slope, rainstorm characteristics, cover, and land management than by soil properties. Soil erodibility refers to the properties of the soil itself, which cause it to erode more or less easily than others when all other factors are constant.

The soil erodibility factor, K, is the rate of soil loss per erosion index unit as measured on a unit plot, and represents an average value for a given soil reflecting the combined effects of all the soil properties that significantly influence the ease of soil erosion by rainfall and runoff if not protected. The K values closer to 1.0 represent higher soil erodibility and a greater need for best management practices to minimize erosion and contain those sediments which do erode. The range of K-factor values in the Pee Dee River Basin is from 0.10 to 0.28.

Fish Consumption Advisory

At the time of publication, a fish consumption advisory issued by SCDHEC is in effect for **the Pee Dee River, the Little Pee Dee River, the Lumber River, Lake Robinson, and Black Creek** advising people to limit the amount of some types of fish consumed from these waters. Fish consumption advisories are updated annually in March. For background information and the most current advisories please visit the Bureau of Water homepage at http://www.scdhec.net/water and click on "Advisories". For more information or a hard copy of the advisories, call SCDHEC's Division of Health Hazard Evaluation toll-free at (888) 849-7241.

Climate

Normal yearly rainfall in the Pee Dee River area is 47.14 inches, according to the S.C. historic climatological record. Data compiled from National Weather Service stations in Pee Dee, Cheraw, McColl, Darlington, Florence (City and Airport), Dillon, Marion, and Georgetown were used to determine the general climate information for this portion of the State. The highest level of rainfall occurs in the summer with 15.64 inches; 9.77, 10.60, and 11.13 inches of rain falling in the fall, winter, and spring, respectively. The average annual daily temperature is 62.6°F. Summer temperatures average 78.6°F and fall, winter, and spring temperatures are 63.8°F, 45.7°F, and 62.5°F, respectively.

Watershed Evaluations

03040201-010

(Pee Dee River)

General Description

Watershed 03040201-010 (formerly 03040201-019 and -029) is located in Marlboro and Chesterfield Counties and consists primarily of the ***Pee Dee River*** and its tributaries from the North Carolina/South Carolina state line to Whites Creek. The watershed occupies 8,652 acres of the Sandhills and Upper Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Lakeland-Pelion-Chewacla-Norfolk series. The erodibility of the soil (K) averages 0.16; the slope of the terrain averages 14%, with a range of 0-30%. Land use/land cover in the watershed includes: 38.9% forested wetland (swamp), 34.4% forested land, 12.1% scrub/shrub land, 8.1% agricultural land, 5.6% water, 0.7% urban land, 0.1% nonforested wetland (marsh), and 0.1% barren land.

This upper reach of the Pee Dee River in South Carolina accepts drainage from its North Carolina reaches and Marks Creek. There are a total of 22.0 stream miles and a few ponds totaling 9.7 acres in this watershed, all classified FW.

Water Quality

No water quality monitoring occurred in this watershed.

A fish consumption advisory has been issued by the Department for mercury and includes the Pee Dee River within this watershed (see advisory p.115).

Nonpoint Source Management Program

Mining Activities

MINING COMPANY / ***MINE NAME***	***PERMIT #*** / ***MINERAL***
W.R. BONSAL CO. / ESKRIDGE PLANT	0726-69 / SAND

Growth Potential

There is a low potential for growth in this watershed.

03040201-030

(Westfield Creek)

General Description

Watershed 03040201-030 (formerly 03040201-033) is located in Chesterfield County and consists primarily of ***Westfield Creek*** and its tributaries. The watershed occupies 17,435 acres of the Sandhills and Upper Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Emporia-Alpin-Chewacla series. The erodibility of the soil (K) averages 0.22; the slope of the terrain averages 5%, with a range of 0-10%. Land use/land cover in the watershed includes: 42.0% forested land, 25.9% agricultural land, 25.5% forested wetland (swamp), 6.1% scrub/shrub land, 0.3% water, 0.1% barren land, and 0.1% urban land.

Westfield Creek flows across the North Carolina state line and accepts drainage from Little Westfield Creek and Goodmans Creek before flowing into the Pee Dee River. There are a total of 38.7 stream miles and a few ponds (totaling 32.2 acres) in this watershed, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-339	W	FW	WESTFIELD CREEK AT US 52
PD-641	BIO	FW	WESTFIELD CREEK AT SR 62

Westfield Creek **-** There are two monitoring sites along Westfield Creek. Aquatic life uses are fully supported at the upstream site ***(PD-339)***. Recreational uses are partially supported due to fecal coliform bacteria excursions. At the downstream site ***(PD-641)***, aquatic life uses are partially supported based on macroinvertebrate community data.

Nonpoint Source Management Program

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
PALMETTO BRICK CO. PHILLIPS MINE	0814-25 SHALE
MARION CERAMICS PAVER MINE	0550-25 SHALE

Growth Potential

There is a low potential for growth in this watershed.

03040201-040

(Whites Creek)

General Description

Watershed 03040201-040 (formerly 03040201-041) is located in Marlboro County and consists primarily of ***Whites Creek*** and its tributaries. The watershed occupies 16,204 acres of the Sandhills region of South Carolina. The predominant soil types consist of an association of the Lakeland-Pelion-Fuquay series. The erodibility of the soil (K) averages 0.13; the slope of the terrain averages 7%, with a range of 2-15%. Land use/land cover in the watershed includes: 41.9% forested land, 38.8% scrub/shrub land, 13.8% forested wetland (swamp), 5.0% agricultural land, 0.4% water, and 0.1% urban land.

Whites Creek flows through Wallace Pond and Everett Millpond before draining into the Pee Dee River near the South Carolina/North Carolina state line. There are a total of 32.8 stream miles and several ponds totaling 112.2 acres in this watershed, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-191	W	FW	WHITES CREEK AT US 1

Whites Creek (PD-191) - Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH and dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are fully supported.

Growth Potential

There is a low potential for growth in this watershed.

03040201-050

(Pee Dee River)

General Description

Watershed 03040201-050 is located in Marlboro, Chesterfield, Darlington, and Florence Counties and consists primarily of the ***Pee Dee River*** and its tributaries from Whites Creek to Black Creek. The watershed occupies 225,702 acres of the Sandhills and Upper and Lower Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Chastain-Tawcaw-Lakeland-Pelion-Norfolk series. The erodibility of the soil (K) averages 0.20; the slope of the terrain averages 7%, with a range of 0-15%. Land use/land cover in the watershed includes: 32.5% forested land, 22.6% scrub/shrub land, 20.6% forested wetland (swamp), 18.0% agricultural land, 4.4% water, 1.7% urban land, and 0.2% barren land.

This section of the Pee Dee River accepts drainage from its upstream reaches, along with the Whites Creek Watershed, the Westfield Creek Watershed, Hicks Creek, Husbands Creek, Huckleberry Branch (Wilson Branch), and the Thompson Creek Watershed near the Town of Cheraw. Phils Creek (Wolf Creek, Andersons Millpond, Grants Millpond) enters the river next, followed by Beaverdam Creek, Tarkiln Creek, Naked Creek (Bullards Millpond, McLaurins Millpond, Davids Millpond, Herndon Branch), the Crooked Creek Watershed, Hugh Creek, Reedys Branch, and the Cedar Creek Watershed. Further downstream, near the Town of Society Hill, the river accepts drainage from Buckholtz Creek (Lake Darpo or Spring Lake), Henegan Lake, Lake Creek, Flat Creek, and the Three Creeks Watershed. Another Flat Creek enters the system downstream of Three Creeks, followed by Rogers Creek (Mosey Bay), Hurricane Branch, and Back Swamp (Fountain Branch, Alligator Creek). There are numerous lakes and ponds (totaling 1,493.2 acres) in this watershed and a total of 423.2 stream miles, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-012	P	FW	PEE DEE RIVER AT US 1 NE CHERAW
PD-015	P	FW	PEE DEE RIVER AT US 15 & 401
PD-028	P	FW	PEE DEE RIVER AT SC 34 11 MILES NE DARLINGTON

Pee Dee River - There are three monitoring sites along this section of the Pee Dee River. Aquatic life uses are fully supported at the furthest upstream site ***(PD-012)***. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. Very high concentrations of cadmium and lead were measured in the 1998 sediment sample. Also in sediments, O,P’DDD (a metabolite of DDT) and PCB-1242 were detected in the 1994 sample, PCB-1248 was detected in the 1996 sample, P,P'DDE (a metabolite of DDT) was detected in the 1997 sample, and P,P’DDT (a metabolite of DDT) was detected in the 1998 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are partially supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria concentration. At the next site downstream ***(PD-015)***, aquatic life and recreational uses are fully supported.

Aquatic life uses are not supported at the downstream site ***(PD-028)*** due to occurrences of copper in excess of the aquatic life acute standards. In addition, there was a significant decreasing trend in dissolved oxygen concentration**.** Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are fully supported.

Lake Darpo - Aquatic herbicides were applied in 1990 to control aquatic plants and provide access for swimming and boating. The treatment was successful and no additional treatments have been necessary.

A fish consumption advisory has been issued by the Department for mercury and includes the Pee Dee River within this watershed (see advisory p.115).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
PEE DEE RIVER MOHAWK IND./OAK RIVER MILL PIPE #: 001 FLOW: 0.05 PIPE #: 002, 003 FLOW: M/R	SC0001996 MINOR INDUSTRIAL EFFLUENT EFFLUENT
PEE DEE RIVER GALEY & LORD, INC. PIPE #: 001 FLOW: 6.5 WQL FOR DO	SC0002704 MAJOR INDUSTRIAL WATER QUALITY
PEE DEE RIVER TOWN OF CHERAW WWTP PIPE #: 001 FLOW: 4.0	SC0020249 MAJOR DOMESTIC EFFLUENT
PEE DEE RIVER WILLIAMETTE INDUSTRIES/MARLBORO MILL PIPE #: 001 FLOW: 15.0 WQL FOR DO	SC0042188 MAJOR INDUSTRIAL WATER QUALITY
PEE DEE RIVER DELTA MILLS MKTG PIPE #: 001 FLOW: 4.2	SC0002151 MAJOR INDUSTRIAL EFFLUENT
HICKS CREEK DELTA MILLS MKTG PIPE #: 002 FLOW: 0.041	SC0002151 MINOR INDUSTRIAL EFFLUENT
HUCKLEBERRY BRANCH TOWN OF CHERAW/WTP	SCG645011 MINOR DOMESTIC

PIPE #: 001 FLOW: M/R EFFLUENT

Nonpoint Source Management Program

Camp Facilities

FACILITY NAME/TYPE ***RECEIVING STREAM***	***PERMIT #*** ***STATUS***
PINE HILL BAPTIST RETREAT/RESIDENT PHILS CREEK	34-0031 ACTIVE
GIRL SCOUT CAMP/RESIDENT PHILS CREEK	34-0032 ACTIVE
CAMP PEE DEE/RESIDENT PHILS CREEK	34-0006 ACTIVE

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
PALMETTO BRICK INDUSTRIAL	IWP-014 ---------
CHESTERFIELD CO. LANDFILL MUNICIPAL	DWP-017 CLOSED
WILLIAMETTE IND. MARLBORO MILL INDUSTRIAL	353301-1601 (IWP-243) ---------

Land Application Sites

LAND APPLICATION SYSTEM ***FACILITY NAME***	***ND#*** ***TYPE***
SPRAYFIELD POWELL MANUFACTORING CO., INC.	ND0000639 DOMESTIC

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
PALMETTO BRICK CO. IRBY MINE	0171-69 CLAY
BECKER SAND & GRAVEL CO. MARLBORO FIELD PLANT	0096-69 SAND/GRAVEL
BECKER MINERALS, INC. CASH PLANT	0092-25 SAND/GRAVEL
PEE DEE SAND & GRAVEL PEE DEE MINE	0466-25 SAND/GRAVEL
DARLINGTON COUNTY	0967-31

RUSSELL #2	SAND/CLAY

Water Supply

WATER USER (TYPE)	***REGULATED CAPACITY (MGD)***
STREAM	***PUMPING CAPACITY (MGD)***
TOWN OF CHERAW (M)	6.0
PEE DEE RIVER	11.5
DELTA MILLS MKTG (M)	7.2
PEE DEE RIVER	10.0

Growth Potential

There is a moderate potential for growth in this watershed, which contains the Town of Cheraw and a portion of the Town of Society Hill, and is projected to have one of the largest population growth rates in the region. There are numerous industries in the watershed, most in and around the municipal limits of Cheraw. Commercial development is also centered around Cheraw, particularly west of town along S.C. Hwy. 9, and additional growth is expected. A large portion of the watershed is not served by public water or sewer systems, primarily due to the large expanse of the floodplain associated with the Pee Dee River. These services are provided in and immediately around the Town of Cheraw, and along S.C. Hwy. 34 east of the City of Darlington. The Town of Cheraw is planning a wastewater treatment plant upgrade that should encourage further growth.

03040201-060

(Thompson Creek)

General Description

Watershed 03040201-060 (formerly 03040201-062 and **incorporating 03040104-060)** is located in Chesterfield County and consists primarily of ***Thompson Creek*** and its tributaries. The watershed occupies 192,398 acres of the Sandhills and Upper Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Alpin-Tatum-Candor-Troup series. The erodibility of the soil (K) averages 0.20; the slope of the terrain averages 12%, with a range of 0-25%. Land use/land cover in the watershed includes: 65.5% forested land, 22.3% agricultural land, 5.0% forested wetland (swamp), 4.8% scrub/shrub land, 1.2% urban land, 0.7% water, and 0.5% barren land.

While Thompson Creek originates in South Carolina, several of its tributaries originate in North Carolina including Deadfall Creek and Cedar Creek. Brown Creek originates near the headwaters of Thompson Creek and flows into North Carolina. Thompson Creek accepts drainage from Stone House Creek (Betties Branch), Clay Creek, Collins Branch, Deadfall Creek, Cedar Creek, Deep Creek (Mill Branch, Jenning Branch, Pitt Branch, Mill Creek, Horsepen Branch, Gulpins Branch, Crews Branch, Sellers Pond), and Tavern Branch. Jimmies Creek (Smarsh Branch) enters the system next, followed by Abrams Creek, Robeson Branch (Reedy Branch), Spencer Mill Creek (Sixmile Creek), and Indian Creek. Bear Creek (Rocky Prong, Teal Millpond) accepts drainage from Big Bear Creek (North Prong, Mill Branch, Cow Branch, Mash Branch, Strickland Branch) and Little Bear Creek (Polecat Branch, Bay Springs Branch, Bay Branch, Twitty Prong, Mount Prong, Mash Branch, Underground Branch, Gully Branch, Cross Branch) before flowing into Thompson Creek downstream of Indian Creek.

Beaver Creek flows into the system further downstream followed by Juniper Creek (Mill Creek, Wilkes Millpond, Cow Branch, Coker Branch, Little Juniper Creek, Campbell Lake, Pats Branch, Juniper Lake). The Cheraw State Park extends across Juniper Creek from Little Juniper Creek to downstream of Juniper Lake (also known as Eureka Lake). The Cheraw National Fish Hatchery is located within the Cheraw State Park. The Sand Hills State Forest extends over the lower portion of the watershed. Thompson Creek Watershed drains into the Pee Dee River. There are numerous recreational lakes and ponds (totaling 1,067.8 acres) and a total of 419.4 stream miles in this watershed, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-246	S	FW	THOMPSON CREEK AT S-13-243 0.8 MILES NE OF CHESTERFIELD
PD-673	BIO	FW	THOMPSON CREEK AT SC 109
PD-247	S	FW	THOMPSON CREEK AT SC 9 1.5 MILES ESE OF CHESTERFIELD
PD-671	BIO	FW	DEEP CREEK AT SR 47
PD-338	S	FW	THOMPSON CREEK AT S-13-148 S OF CHERAW
PD-677	BIO	FW	NORTH PRONG CREEK AT SC 102
PD-340	W	FW	JUNIPER CREEK AT S-13-494

Thompson Creek* -** There are four monitoring sites along Thompson Creek. Aquatic life uses are fully supported at the furthest upstream site ***(PD-246), but recreational uses are not supported due to fecal coliform bacteria excursions. At the next site downstream ***(PD-673)***, aquatic life uses are partially supported based on macroinvertebrate community data. Further downstream ***(PD-247)***, aquatic life uses are partially supported due to dissolved oxygen excursions, compounded by a significant increasing trend in total phosphorus concentration. Recreational uses are not supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Aquatic life uses are fully supported at the furthest downstream site ***(PD-338)***; however there is a significant increasing trend in five-day biochemical oxygen demand. A significant decreasing trend in total phosphorus concentration suggests improving conditions for this parameter. P,P'DDT (a metabolite of DDT) was detected in the 1998 sediment sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Deep Creek (PD-671) - Aquatic life uses are partially supported based on macroinvertebrate community data.

North Prong Creek (PD-677) - Aquatic life uses are fully supported based on macroinvertebrate community data.

***Juniper Creek (PD-340)* -** Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are fully supported.

***Juniper Lake* -** Juniper Lake in Cheraw State Park is a 260-acre impoundment on Juniper Creek, with a maximum depth of approximately 25 feet (7.6 meters) and an average depth of approximately six feet (1.9 meters). Juniper Lake's relatively undeveloped watershed comprises 52 square miles (136 km2), and is almost entirely contained within state park and the Sand Hills State Forest boundaries. Juniper Lake was treated with aquatic herbicides from 1989-1991 to control aquatic plants and provide access for swimming, fishing, and boating. These treatments were successful and no additional treatments have been necessary.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***

FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
THOMPSON CREEK	SC0025232
TOWN OF CHESTERFIELD	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.45 (PROPOSED)	WATER QUALITY
PIPE #: 001 FLOW: 0.75 (PROPOSED)	WATER QUALITY
PIPE #: 001 FLOW: 1.00 (PROPOSED)	WATER QUALITY
WQL FOR DO,TRC,NH3N,BOD5	
THOMPSON CREEK	SCG730045
HEDRICK SAND & GRAVEL CO.	MINOR INDUSTRIAL
PIPE #: 001 FLOW: M/R	EFFLUENT

Nonpoint Source Management Program

Camp Facilities

FACILITY NAME/TYPE	***PERMIT #***
RECEIVING STREAM	***STATUS***
WOODMAN OF WORLD YOUTH CAMP/RESIDENT	13-0172
MOUNT PRONG	ACTIVE
CAMP FOREST/RESIDENT	13-0084
JUNIPER LAKE-JUNIPER CREEK	ACTIVE
CAMP JUNIPER/RESIDENT	13-0083
JUNIPER LAKE-JUNIPER CREEK	ACTIVE
CHERAW STATE PARK/RESIDENT	13-0078
JUNIPER LAKE-JUNIPER CREEK	ACTIVE

Mining Activities

MINING COMPANY	***PERMIT #***
MINE NAME	***MINERAL***
BECKER MINERALS, INC.	0797-25
PAGELAND QUARRY	GRANITE
CHESTERFIELD COUNTY	0272-25
COUNTY PIT	SAND/CLAY
JEWEL CITY SAND CO., INC	1147-25
JEWEL CITY SAND MINE	SAND

Water Supply

WATER USER (TYPE)	***REGULATED CAPACITY (MGD)***

STREAM	***PUMPING CAPACITY (MGD)***
TOWN OF CHESTERFIELD (M)	1.00
THOMPSON CREEK	2.20

Growth Potential

There is a low potential for growth in this watershed, which contains the Towns of Patrick, Chesterfield, Ruby, and Mt. Croghan, and a portion of the Town of Cheraw. Water service is available in the above towns, but sewer services are limited to Chesterfield and the Cheraw urban area. The Town of Chesterfield has recently extended water and sewer service east of the community to serve a local industrial park, but few other extensions are planned in the next five years. Commercial and industrial development is likely west of Cheraw and east of Chesterfield. The lower portion of the watershed (near Patrick) is in public ownership as part of the Sand Hills State Forest, and development will be limited as a result.

Watershed 03040104-060, to the west of this watershed, has a low to moderate potential for growth. A portion of the Town of Pageland resides in this watershed and reflects the edge of the Charlotte Metroplex; future growth is expected. Pageland and the area immediately outside of the town have water and sewer service.

03040201-070

(Crooked Creek)

General Description

Watershed 03040201-070 (formerly 03040201-072) is located in Marlboro County and consists primarily of ***Crooked Creek*** and its tributaries. The watershed occupies 42,737 acres of the Sandhills and Upper Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Norfolk-Wagram-Rutledge series. The erodibility of the soil (K) averages 0.17; the slope of the terrain averages 5%, with a range of 0-10%. Land use/land cover in the watershed includes: 34.4% scrub/shrub land, 32.4% agricultural land, 15.9% forested land, 6.9% forested wetland (swamp), 5.7% urban land, 4.3% water, and 0.4% barren land.

Crooked Creek accepts drainage from Lightwood Knot Creek and Usher Pond before flowing through Goodwins Pond and Burnt Factory Lake. Crooked Creek then receives drainage from Beverly Creek and Lily Quick Creek before flowing through Lake Paul Wallace and McCalls Millpond near the City of Bennettsville. The Crooked Creek Watershed drains into the Pee Dee River. There are several lakes (totaling 730.0 acres) in this watershed and a total of 62.3 stream miles, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-107	S	FW	CROOKED CREEK AT SC 9 IN BENNETTSVILLE
PD-014	S	FW	CROOKED CREEK AT S-35-43
PD-063	W	FW	CROOKED CREEK AT SC 912

Crooked Creek* -** There are three monitoring sites along Crooked Creek. This is a blackwater system, which are often characterized by naturally low pH and dissolved oxygen concentrations. Aquatic life uses are fully supported at the furthest upstream site ***(PD-107). Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. There is a significant increasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions.

At the next site downstream ***(PD-014)***, aquatic life uses are also fully supported. Although pH and dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. There is a significant increasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Aquatic life and recreational uses are fully supported at the downstream site ***(PD-063)***. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations.

Lake Paul Wallace - Lake Paul Wallace is a 416-acre divided impoundment on Crooked Creek, with a maximum depth of approximately 14 feet (4.3 meters) and an average depth of approximately four feet (1.2 meters). Lake Wallace's watershed comprises 42 square miles (109 km2) in North and South Carolina. An embankment isolates the fishing lake from the swimming lake, which conveys the flow from Crooked Creek. Lake Wallace was treated with aquatic herbicides in 1989, 1992, and 1994 to control aquatic plants and provide access for swimming and boating. In addition, 800 grass carp (26/acre) were stocked in 1994 to decrease the plant population. The stocking and herbicide treatments were successful and no additional treatments have been necessary.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
CROOKED CREEK	SC0025178
CITY OF BENNETTSVILLE WWTP	MAJOR DOMESTIC
PIPE #: 001 FLOW: 3.9	WATER QUALITY
PIPE #: 001 FLOW: 5.0 , 6.0 (PROPOSED)	WATER QUALITY
WQL FOR DO,TRC,NH3N,BOD5	
CROOKED CREEK	SC0027219
BECKER MINERALS, INC./MARLBORO PLT	MINOR INDUSTRIAL
PIPE #: 001 FLOW: M/R	EFFLUENT

Nonpoint Source Management Program

Mining Activities

MINING COMPANY	***PERMIT #***
MINE NAME	***MINERAL***
MARLBORO COUNTY	0280-69
MARLBORO COUNTY PIT	SAND/CLAY
BECKER SAND & GRAVEL CO.	0095-69
MARLBORO PLANT	SAND/GRAVEL

Water Supply

WATER USER (TYPE)	***REGULATED CAPACITY (MGD)***
STREAM	***PUMPING CAPACITY (MGD)***
CITY OF BENNETTSVILLE (M)	4.00
LAKE WALLACE	6.00

Growth Potential

There is a low to moderate potential for growth in this watershed, which contains the majority of the City of Bennettsville. Water and sewer services are available in and around Bennettsville and should encourage growth. S.C. Hwy. 9 crosses the watershed, and commercial growth is expected along this corridor.

03040201-080

(Cedar Creek)

General Description

Watershed 03040201-080 is located in Chesterfield and Darlington Counties and consists primarily of ***Cedar Creek*** and its tributaries. The watershed occupies 44,504 acres of the Sandhills and Upper Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Alpin-Candor-Troup series. The erodibility of the soil (K) averages 0.10; the slope of the terrain averages 6%, with a range of 2-15%. Land use/land cover in the watershed includes: 66.8% forested land, 21.3% agricultural land, 6.8% forested wetland (swamp), 4.7% scrub/shrub land, and 0.4% water.

The Cedar Creek Watershed lies within the Sand Hills State Forest and accepts drainage from Little Cedar Creek (Pool Branch), Harris Creek, Coker Pond, and Spot Mill Creek. There are a few recreational ponds (totaling 139.1 acres) and a total of 88.2 stream miles in this watershed, all classified FW. The Cedar Creek Watershed drains into the Pee Dee River.

Water Quality

Station #	Type	Class	Description
PD-675	BIO	FW	CEDAR CREEK AT SR 171
PD-151	W	FW	CEDAR CREEK AT US 52

Cedar Creek - There are two monitoring sites along Cedar Creek. At the upstream site ***(PD-675)***, aquatic life uses are fully supported based on macroinvertebrate community data. At the downstream site ***(PD-151)***, aquatic life and recreational uses are fully supported. This is a blackwater system, characterized by naturally low pH. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations.

Nonpoint Source Management Program

Camp Facilities

FACILITY NAME/TYPE RECEIVING STREAM	PERMIT # STATUS
CAMP COKER/RESIDENT SPOT MILL CREEK	13-0080 ACTIVE

Land Disposal Activities

Landfill Facilities

LANDFILL NAME FACILITY TYPE	PERMIT # STATUS
CHESTERFIELD COUNTY LANDFILL MUNICIPAL	131001-1601 (DWP-028) CLOSED

Mining Activities

MINING COMPANY	***PERMIT #***
MINE NAME	***MINERAL***
PALMETTO BRICK CO.	0997-25
WINBURN	KAOLIN

Water Supply

WATER USER (TYPE)	***REGULATED CAPACITY (MGD)***
STREAM	***PUMPING CAPACITY (MGD)***
GALEY & LORD, INC./SOCIETY HILL PLT. (I)	8.64
CEDAR CREEK	-----

Growth Potential

There is a low potential for growth in this predominately rural watershed, which contains a portion of the Town of Society Hill. Water service is available in Society Hill, but there is no sewer service in the watershed. A portion of the watershed is within the Sand Hills State Forest, and the remainder is primarily agricultural and timberland uses.

03040201-090

(Three Creeks)

General Description

Watershed 03040201-090 is located in Marlboro County and consists primarily of ***Three Creeks*** and its tributaries. The watershed occupies 79,639 acres of the Upper and Lower Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Norfolk-Wagram-Rutledge series. The erodibility of the soil (K) averages 0.22; the slope of the terrain averages 2%, with a range of 1-10%. Land use/land cover in the watershed includes: 30.7% agricultural land, 29.6% scrub/shrub land, 25.0% forested land, 11.2% forested wetland (swamp), 2.4% urban land, 1.0% water, and 0.1% barren land.

Cottingham Creek (Covington Millpond, Sandy Ocean, Carters Branch) originates near the City of Bennettsville and joins with Hagins Prong to form the headwaters of Three Creeks (Monroe Branch, Drakes Millpond, Big Branch). The Three Creeks Watershed flows into the Pee Dee River. Also flowing into the Pee Dee River from this watershed is Muddy Creek (Machine Branch, Riggins Branch), located upstream of Three Creeks. There are several ponds (151.1 acres) in this watershed and a total of 86.7 stream miles, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-336	S	FW	HAGINS PRONG AT SC ROUTE 381
PD-341	W	FW	THREE CREEKS AT SC 381 AT BLENHEIM

***Hagins Prong (PD-336)* -** Aquatic life uses are fully supported. This is a secondary monitoring station and sampling is purposely biased towards periods with potentially low dissolved oxygen concentrations. This stream frequently does not flow at the monitoring location. Although dissolved oxygen and pH excursions occurred, they were typical of values seen in stagnant streams and were considered natural, not standards violations. There is a significant increasing trend in pH. A significant decreasing trend in turbidity suggests improving conditions for this parameter. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

***Three Creeks (PD-341)* -** Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH and dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are fully supported.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
RIGGINS BRANCH	SCG730039
HANSON AGGREG. BECKER/BLENHEIM	MINOR INDUSTRIAL
PIPE #: 001 FLOW: M/R	EFFLUENT
HAGINS PRONG	SC0040606
TOWN OF CLIO	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.3	WATER QUALITY
WQL FOR DO,TRC,NH3N	

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME	***PERMIT #***
FACILITY TYPE	***STATUS***
MARLBORO COUNTY LANDFILL	351001-1601 (351001-1201)
MUNICIPAL	----------
OLD MARLBORO COUNTY LANDFILL	DWP-027
MUNICIPAL	CLOSED
CITY OF BENNETTSVILLE LANDFILL	DWP-075; 351001-1101; DWP-132
MUNICIPAL	CLOSED
CITY OF BENNETTSVILLE LANDFILL	DWP-096
MUNICIPAL	CLOSED
CITY OF BENNETTSVILLE TRANSFER STA.	351002-6001
MUNICIPAL	CLOSED

Growth Potential

There is a low to moderate potential for growth in this rural watershed, which contains the Towns of Clio, Tautm, and Blenheim, and a portion of the City of Bennettsville. The watershed is bisected by S.C. Hwy. 9, S.C. Hwy. 38, and U.S. Hwys. 15/401. S.C. Hwy. 38 is a four-lane highway and runs from Bennettsville through Blenheim to I-95. S.C. Hwy. 9 runs from Clio to Bennettsville, and U.S. Hwys. 15/401 is a bypass around the City of Bennettsville. The bypass area is expected to see increased commercial growth. Several of the small towns have water service, but only Clio and the areas near Bennettsville provide sewer service.

03040201-100

(Black Creek/Lake Robinson)

General Description

Watershed 03040201-100 is located in Chesterfield and Darlington Counties and consists primarily of ***Black Creek*** and its tributaries from its origin to the Lake Robinson Dam. The watershed occupies 109,341 acres of the Sandhills region of South Carolina. The predominant soil types consist of an association of the Alpin-Candor-Troup series. The erodibility of the soil (K) averages 0.10; the slope of the terrain averages 7%, with a range of 2-15%. Land use/land cover in the watershed includes: 68.2% forested land, 18.3% agricultural land, 7.3% scrub/shrub land, 2.6% water, 1.5% urban land, 1.3% barren land, and 0.8% forested wetland.

Black Creek originates near the Town of Pageland and accepts drainage from Old Town Pond, Cattail Branch, Mangum Branch, Boggy Branch, Rocky Branch, Big Branch, Panther Branch, Tan Trough Branch, and Cotton Patch Branch. Big Ruddy Branch enters the system next followed by Silver Run, Little Ruddy Branch, Still Branch, Horsepen Branch, Hurricane Branch, Joplin Branch (Stancil Lakes), Big Branch, and Meadow Branch (Joplin Mill Branch). Further downstream, Rattlesnake Branch (Dismal Spring Branch) flows into Black Creek followed by Jessies Branch, Little Black Creek (Graves Millpond, Peddler Branch, Martin Branch, Woodward Millpond), Canal Branch, and Poplar Branch. Black Creek then accepts drainage from Skipper Creek (Peeled Oak Branch, Dead Pine Branch, Little Skipper Creek), Rogers Branch, Pond Branch, Long Branch (Clay Ford Branch, Mays Lake), Ham Creek (Triple Lakes, Lake Bee, Hemp Branch, Lightwood Log Branch, Poplar Branch, Martin Lake, Cow Branch), and Little Alligator Creek before flowing through Lake Robinson. Little Beaverdam Branch and Lower Alligator Creek flow into the headwaters of the lake, Big Beaverdam Creek flows into the midsection, and Pond Hollow Branch enters the lake near the dam.

The Carolina Sandhills National Wildlife Refuge extends across the center of the watershed, and the Sand Hills State Forest lies between the refuge and the lake. There are numerous lakes and ponds (totaling 2,452.7 acres) in this watershed, and a total of 166.8 stream miles. Black Creek and its tributaries upstream of the S.C. Hwy. 145 crossing (just upstream of Skipper Creek) are classified FW. Downstream of the crossing, Black Creek is classified FW* (Dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5) and its tributaries are classified FW. Lake Robinson is classified FW*.

Water Quality

Station #	Type	Class	Description
PD-674	BIO	FW	BLACK CREEK AT SR 683
PD-004	P	FW	BLACK CREEK AT S-13-43 1 MILES NE NICEY GROVE
PD-676	BIO	FW	LITTLE BLACK CREEK AT ZILLYSTEEN ROAD
PD-670	BIO	FW*	BLACK CREEK AT SR 33
PD-613	BIO	FW	SKIPPER CREEK AT SC 145
PD-251	W	FW*	BLACK CREEK AT US 1
PD-327	P	FW*	LAKE ROBINSON AT S-13-346 5 MILES E MCBEE

Black Creek - There are four monitoring sites along this section of Black Creek. At the furthest upstream site ***(PD-674)***, aquatic life uses are fully supported based on macroinvertebrate community data. At the next site downstream ***(PD-004)***, aquatic life and recreational uses are fully supported. There is a significant increasing trend in pH. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentration suggest improving conditions for these parameters. The pesticide dieldrin was detected in the 1994 sediment sample. Further downstream ***(PD-670)***, aquatic life uses are fully supported based on macroinvertebrate community data. At the furthest downstream site ***(PD-251)***, aquatic life and recreational uses are fully supported.

Little Black Creek (PD-676) - Aquatic life uses are fully supported based on macroinvertebrate community data.

Skipper Creek (PD-613) - Aquatic life uses are fully supported based on macroinvertebrate community data.

Lake H. Robinson (PD-327) - Lake Robinson is a 2250-acre impoundment on Black Creek, with a maximum depth of approximately 31 feet (9.4 meters) and an average depth of approximately 14 feet (4.2 meters). Lake Robinson's watershed comprises 173 square miles (448 km2).

Aquatic life uses are fully supported; however, there is a significant decreasing trend in dissolved oxygen concentration. There is also a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters. P,P'DDT (a metabolite of DDT) was detected in the 1994 sediment sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are fully supported; however, there is a significant increasing trend in fecal coliform bacteria concentration.

A fish consumption advisory has been issued by the Department for mercury and includes Lake Robinson within this watershed (see advisory 115).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM / ***FACILITY NAME*** / ***PERMITTED FLOW @ PIPE (MGD)*** / ***COMMENT*** — ***NPDES#*** / ***TYPE*** / ***LIMITATION***

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
BLACK CREEK TOWN OF PAGELAND/WTP PIPE #: 001 FLOW: M/R	SCG645012 MINOR INDUSTRIAL EFFLUENT
LITTLE BLACK CREEK	SCG730045

HEDRICK SAND & GRAVEL CO. — MINOR INDUSTRIAL
PIPE #: 001 FLOW: M/R — EFFLUENT

CATTAIL BRANCH — SC0021539
TOWN OF PAGELAND/SOUTHEAST WWTP — MINOR DOMESTIC
PIPE #: 001 FLOW: 0.6 — WATER QUALITY
PIPE #: 001 FLOW: 0.8 (PROPOSED) — WATER QUALITY
WQL FOR DO,TRC,NH3N

LAKE ROBINSON — SC0002925
CAROLINA POWER/HB ROBINSON — MAJOR INDUSTRIAL
PIPE #: 001 FLOW: 855.0 — EFFLUENT
PIPE #: 003 FLOW: 0.0425 — EFFLUENT

LOWER ALLIGATOR CREEK — SC0044938
A.O. SMITH WATER PRODUCTS CO. — MINOR INDUSTRIAL
PIPE #: 001 FLOW: 0.003 — EFFLUENT
PIPE #: 002 FLOW: 0.002 — EFFLUENT
PIPE #: 004 FLOW: 0.009 — EFFLUENT

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME	***PERMIT #***
FACILITY TYPE	***STATUS***
CHESTERFIELD COUNTY LF #2/JEFFERSON	DWP-036
MUNICIPAL	CLOSED
CHESTERFIELD DUMP	--------
--------	CLOSED
CAROLINA POWER & LIGHT C/C LANDFILL	163001-1601 (CWP-028, CWP-029, IWP-195, IWP-176)
CONSTRUCTION	---------
CAROLINA POWER & LIGHT C/C LANDFILL	163001-1602
CONSTRUCTION	---------

Mining Activities

MINING COMPANY	***PERMIT #***
MINE NAME	***MINERAL***
B.V. HEDRICK GRAVEL & SAND CO.	0665-25
PIEDMONT SAND	SAND
METROMONT MATERIALS CORP.	0757-25
BOVA MINE #2	SAND
METROMONT MATERIALS CORP.	0426-25
PAGELAND SAND PIT #2	SAND
PAGELAND SAND CO., INC.	0746-25
PAGELAND SAND MINE #2	SAND
FT. WILLIAMS SAND CO., INC.	0969-25

WILLIAMS SAND	SAND

Water Supply

WATER USER (TYPE) ***STREAM***	***REGULATED CAPACITY (MGD)*** ***PUMPING CAPACITY (MGD)***
TOWN OF PAGELAND (M) OLD TOWN POND	0.80 2.00

Growth Potential

There is a low to moderate potential for growth in this rural watershed, which contains a portion of the Town of Pageland. The Town of McBee is just outside the watershed. A sizeable portion of the watershed is publicly owned lands within the Carolina Sandhills National Wildlife Refuge or the Sand Hills State Forest, limiting development in these areas. S.C. Hwy. 151 is a four-lane highway connecting the Cities of Florence and Charlotte, and together with its bypass around the Town of Pageland should see additional commercial and industrial development in the northern portion of the watershed. The recent announcement by several industries to locate in this northern portion could also increase growth. Water service is limited to Pageland, McBee, and the southern end of the watershed. Sewer service exists only in the Pageland area. The Town of McBee is the other industrial area in the watershed, and has the potential for growth if sewer service is extended from the City of Hartsville.

03040201-110

(Black Creek)

General Description

Watershed 03040201-110 extends through Darlington, Florence, and Chesterfield Counties and consists primarily of ***Black Creek*** and its tributaries from the Lake Robinson dam to the Pee Dee River. The watershed occupies 186,917 acres of the Sandhills and Upper Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Noboco-Bonneau-Alpin series. The erodibility of the soil (K) averages 0.14; the slope of the terrain averages 4%, with a range of 0-15%. Land use/land cover in the watershed includes: 42.8% agricultural land, 31.4% forested land, 13.1% scrub/shrub land, 8.5% urban land, 3.6% forested wetland (swamp), and 0.6% water.

This section of Black Creek accepts drainage from its upper reach together with Beaverdam Creek (King Millpond, Beaverdam Millpond) before flowing through Prestwood Lake (Dry Branch, Horsepen Branch) in the City of Hartsville. Downstream of the lake, Black Creek accepts drainage from Snake Branch, Spring Branch, Boggy Swamp (Little Boggy Swamp, McIntosh Millpond), Everlasting Branch (Gilbert Lake), Seed Branch (Little Seed Branch, Leavenworth Branch, Chapmans Pond), Horse Creek (Jeffords Millpond), and Lucas Creek. Swift Creek (Indian Creek, Ramsey Pond, Bellyache Creek) enters the system next, flowing through the City of Darlington, followed by High Hill Creek (Star Fork Branch, McCall Branch), Ashby Branch, and Polk Swamp Creek. The Black Creek Watershed drains into the Pee Dee River. There are 339.1 stream miles in this watershed and numerous lakes and ponds totaling 920.8 acres. Beaverdam Creek and Black Creek are classified FW* (dissolved oxygen not less than 4 mg/l and pH between 5.0 and 8.5) from the Lake Robinson Dam to the U.S. Hwy. 52 crossing (just upstream of Horse Creek and Lucas Creek). Tributaries to these stream reaches along with the remaining streams in the watershed are classified FW.

Water Quality

Station #	Type	Class	Description
PD-159	S	FW*	BLACK CREEK AT S-16-23 4.7 MILES NW OF HARTSVILLE
PD-268	S	FW*	SONOVISTA CLUB HARTSVILLE OFF DOCK OF PRESTWOOD LAKE
PD-081	S	FW*	PRESTWOOD LAKE AT US 15
PD-258	S	FW	SNAKE BRANCH AT RAILROAD AVENUE IN HARTSVILLE
PD-137	S	FW	SNAKE BRANCH AT WOODMILL STREET IN HARTSVILLE
PD-021	P	FW*	BLACK CREEK AT S-16-18 1 MILES NNE HARTSVILLE
PD-330	S	FW*	CREEK AT HIGHWAY 15 BYPASS
PD-023	P	FW*	BLACK CREEK AT S-16-13 5.5 MILES NE HARTSVILLE
PD-025	P	FW	BLACK CREEK AT S-16-133 2.25 MILES NE OF DARLINGTON
PD-141	S	FW	TILE DISCHARGING TO DITCH ACROSS RD AT DARLINGTON WWTP
PD-027	P	FW	BLACK CREEK AT S-16-35 5.5 MILES SE DARLINGTON
PD-103	S	FW	HIGH HILL CREEK AT US 52 ON COUNTY LINE
PD-078	W/BIO	FW	BLACK CREEK AT SC 327

Black Creek - There are seven monitoring sites along this section of Black Creek. Aquatic life uses are fully supported at the furthest upstream site ***(PD-159)***; however, there is a significant increasing trend in turbidity. There is a significant increasing trend in pH. Recreational uses are fully supported; however, there is a significant increasing trend in fecal coliform bacteria concentration.

Below Prestwood Lake ***(PD-021)***, aquatic life uses are not supported due to occurrences of copper in excess of the aquatic life acute standards, compounded by a significant increasing trend in turbidity. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are partially supported due to fecal coliform bacteria excursions. In addition, there was a significant increasing trend in fecal coliform bacteria concentration.

Aquatic life uses are fully supported further downstream at ***PD-330***. Significant decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters. Recreational uses are partially supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria concentration.

Aquatic life uses are fully supported at ***PD-023;*** however, there was a high concentration of zinc measured in 1994 and a very high concentration of chromium measured in 1995. There is a significant increasing trend in pH. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand, total phosphorus concentration, total nitrogen concentration, and turbidity suggest improving conditions for these parameters. Recreational uses are partially supported due to fecal coliform bacteria excursions.

At the next site downstream ***(PD-025)***, aquatic life uses are fully. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand, total phosphorus concentration, total nitrogen concentration, and turbidity suggest improving conditions for these parameters. Recreational uses are fully supported; however, there is a significant increasing trend in fecal coliform bacteria concentration.

Further downstream ***(PD-027)***, aquatic life uses are not supported due to occurrences of copper and zinc in excess of the aquatic life acute standards, including a high concentration of zinc measured in 1996 and a very high concentration of zinc measured in 1998. There is also a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand, total phosphorus concentration, total nitrogen concentration, and total suspended solids suggest improving conditions for these parameters. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

At the furthest downstream site ***(PD-078)***, aquatic life uses are fully supported based on macroinvertebrate community data. This is a blackwater system, characterized by naturally low pH. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are fully supported.

Prestwood Lake - There are two monitoring sites on Prestwood Lake. Aquatic life uses are fully supported at both the uplake site ***(PD-268)*** and the downlake site ***(PD-081)***; however, there is a significant increasing trend in turbidity at both sites. There is a significant increasing trend in pH at both sites.

Recreational uses are fully supported at both sites; however, there is a significant increasing trend in fecal coliform bacteria concentration. In an effort to provide access for recreation and industrial uses of the lake, 3000 grass carp (10/acre) were stocked in 1993. The lake was restocked in 1999 with another 3,000 carp.

Snake Branch - There are two monitoring sites along Snake Branch. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. At the upstream site ***(PD-258)***, aquatic life uses are fully supported. Although pH and dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. There is a significant decreasing trend in pH. A significant increasing trend in dissolved oxygen concentration and a significant decreasing trend in five-day biochemical oxygen demand suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria concentration.

Aquatic life uses are also fully supported at the downstream site ***(PD-137)***. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are fully supported.

Tilefield discharging to ditch at Old Darlington WWTP to Swift Creek (PD-141) - Aquatic life uses are not supported due to dissolved oxygen excursions, compounded by a significant decreasing trend in dissolved oxygen and significant increasing trends in five-day biochemical oxygen demand, total nitrogen concentration, and turbidity. Recreational uses are not supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria concentration.

High Hill Creek (PD-103) - Aquatic life uses are fully supported; however, there is a significant increasing trend in turbidity. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH and dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are partially supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria concentration.

A fish consumption advisory has been issued by the Department for mercury and includes portions of Black Creek within this watershed (see advisory p.115).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***

FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
BLACK CREEK	SC0003042
SONOCO PRODUCTS/HARTSVILLE	MAJOR INDUSTRIAL
PIPE #: 002 FLOW: 0.177	EFFLUENT
PIPE #: 001 FLOW: 4.03	WQL FOR DO,NH3N,BOD5
BLACK CREEK	SC0021580
CITY OF HARTSVILLE	MAJOR DOMESTIC
PIPE #: 001 FLOW: 2.50	WATER QUALITY
PIPE #: 001 FLOW: 3.50 (PROPOSED)	WATER QUALITY
PIPE #: 001 FLOW: 4.50 (PROPOSED)	WATER QUALITY
PIPE #: 001 FLOW: 5.50 (PROPOSED)	WATER QUALITY
WQL FOR DO,TRC,NH3H	
BLACK CREEK	SC0039624
CITY OF DARLINGTON/BLACK CREEK WWTP	MAJOR DOMESTIC
PIPE #: 001 FLOW: 1.60	WATER QUALITY
WQL FOR DO,TRC,NH3N	
BLACK CREEK	SCG250022
IMC RAINBOW	MINOR INDUSTRIAL
PIPE #: 001 FLOW: M/R	EFFLUENT
BLACK CREEK	PROPOSED
DARLINGTON COUNTY S&WA	MINOR DOMESTIC
PIPE #: 001 FLOW:0.25	EFFLUENT
BLACK CREEK	SC0004162
WELLMAN INC./PALMETTO PLT	MAJOR INDUSTRIAL
PIPE #: 001 FLOW: 0.90	WATER QUALITY
PIPE #: 001 FLOW: 1.016 (PROPOSED)	WATER QUALITY
WQL FOR NH3N	
BLACK CREEK	SC0002925
CAROLINA POWER	MAJOR INDUSTRIAL
PIPE #: 011 FLOW: 0.426	EFFLUENT
SWIFT CREEK	SCG641014
CITY OF DARLINGTON/NORTH MAIN ST WTP	MINOR DOMESTIC
PIPE #: 001 FLOW: M/R	EFFLUENT
SWIFT CREEK	SC0043231
DCW&SA/SWIFT CREEK WWTP	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.114	WATER QUALITY
WQL FOR DO,TRC,NH3N	
INDIAN CREEK TRIBUTARY	SCG645016
CITY OF DARLINGTON/52 BYPASS WTP	MINOR DOMESTIC
PIPE #: 001 FLOW: M/R	EFFLUENT
HIGH HILL CREEK	SC0029033
DCW&SA/MATOWN WWTP	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.03	WATER QUALITY
WQL FOR DO,TRC,NH3N,BOD5	

STAR FORK BRANCH TRIBUTARY | SC0027669
MARLOWE MOBILE HOME PARK | MINOR DOMESTIC
PIPE #: 001 FLOW: 0.012 | WATER QUALITY
WQL FOR DO,TRC,NH3N,BOD5

MCCALL BRANCH | SCG645024
CITY OF FLORENCE/LUCAS ST. WTP | MINOR DOMESTIC
PIPE #: 001 FLOW: M/R | EFFLUENT

Nonpoint Source Management Program

Camp Facilities

FACILITY NAME/TYPE ***RECEIVING STREAM***	***PERMIT #*** ***STATUS***
KOA CAMPGROUND/FAMILY BLACK CREEK	21-0028 ACTIVE

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
CITY OF FLORENCE MUNICIPAL	DWP-054 CLOSED
DARLINGTON COUNTY LANDFILL MUNICIPAL	161001-6001 (161001-1101, CLOSED DWP-060)
DARLINGTON COUNTY C/C LANDFILL CONSTRUCTION	161001-1201 (CWP-031) -----------
SONOCO PRODUCTS CO. INDUSTRIAL	163315-1601 (IWP-119) ----------
DARLINGTON VENEER CO. INDUSTRIAL	163307-1601 (IWP-112) ----------
DARLINGTON VENEER CO. CONSTRUCTION	CWP-010 ----------
UNION CARBIDE-LINDE DIV. INDUSTRIAL	IWP-132 ----------
COKER PEDIGREE SEED COMPANY INDUSTRIAL	IWP-072 ----------
PEE DEE ENVIRO SERV. C/C LANDFILL CONSTRUCTION	212426-1601 (CWP-015) ----------
PEE DEE ENVIRO SERV. C/C LANDFILL CONSTRUCTION	212426-1201 ----------
NUCOR STEEL INDUSTRIAL	163324-1601 (163324-1602, IWP-245, ---------- IWP-208)

Land Application Sites

LAND APPLICATION SYSTEM ***FACILITY NAME***	***ND#*** ***TYPE***
TILEFIELD ODOM'S MHP	ND0067997 DOMESTIC
PERCOLATION BASIN JAMES F. BYRNES ACADEMY	ND0067245 DOMESTIC
TILEFIELD SWINKS MHP	ND0067636 DOMESTIC
SPRAYFIELD DCW&SA/SWIFT CREEK PLANT	ND0067962 DOMESTIC
SPRAY ON GOLF COURSE FLORENCE COUNTY/DIST. #4	ND0073695 DOMESTIC

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
PALMETTO SAND & FILL PALMETTO SAND #2	0912-31 SAND/CLAY
L.H. STOKES & SON, INC. HOFFMEYER PIT	1067-31 SAND/CLAY
L.H. STOKES & SON, INC. DOVESVILLE	0924-31 SAND
PEE DEE ENVIRONMENTAL SERV. LEGGS PIT	0900-41 SAND/CLAY
APAC-CAROLINA, INC. ASPHALT PLANT #8	0084-41 SAND
INDUSTRIAL PAVING, INC. BRUNSEN MINE	0349-31 SAND/CLAY
MCCUTCHEON & SCURRY PIT #1	0192-31 SAND/CLAY

Water Supply

WATER USER (TYPE) ***STREAM***	***REGULATED CAPACITY (MGD)*** ***PUMPING CAPACITY (MGD)***

SONOCO PRODUCTS/HARTSVILLE #1 & #3 (I)	8.496
PRESTWOOD LAKE	-----
SONOCO PRODUCTS/HARTSVILLE #2 & #4 (I)	8.496
PRESTWOOD LAKE	-----

Growth Potential

There is a high potential for growth in this watershed, which contains the Cities of Hartsville and Darlington, the Town of Dovesville, and portions of the City of Florence and the Towns of McBee and Clyde. The watershed has several major highways that serve as growth corridors. U.S. Hwy. 52 connects Florence to Darlington and has been widened to four lanes, with long term plans to continue the widening from Darlington to Cheraw. S.C. Hwy. 151, already widened to four lanes, is the main Florence to Charlotte travel corridor, and is becoming a magnet for commercial development. The segment of S.C. Hwy. 151 between Darlington and Hartsville is the primary growth corridor for Darlington County and should see additional commercial and industrial growth.

There is extensive water service coverage in the watershed coming from the Town of McBee, the Cities of Hartsville, Darlington, and Florence, and the Darlington County Water and Sewer Authority. Sewer service is currently limited to the three urban areas. Water and sewer system expansions in the watershed are highly likely. All three domestic systems have aggressive growth plans, especially the City of Florence which has recently constructed a new treatment facility and outfall to the Pee Dee River. The City of Florence also has tentative plans to develop a regional surface water treatment facility along the Pee Dee River to address severe groundwater supply problems being experienced by many Pee Dee municipalities.

03040201-120

(Pee Dee River)

General Description

Watershed 03040201-120 is located in Dillon, Marion, and Florence Counties and consists primarily of the ***Pee Dee River*** and its tributaries from Black Creek to Jeffries Creek. The watershed occupies 84,341 acres of the Upper and Lower Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Cantey-Chastain-Persanti series. The erodibility of the soil (K) averages 0.28; the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 33.1% forested wetland (swamp), 29.6% forested land, 25.0% scrub/shrub land, 9.5% agricultural land, 2.4% water, and 0.4% urban land.

This segment of the Pee Dee River accepts drainage from its upper reaches together with Brownsville Swamp, Schoolhouse Branch (Alford Branch, Back Swamp), Mill Creek, Tobys Creek (Poccosin Swamp, Gum Swamp, Cud Swamp, Ellerbe Bay, Agnay Swamp), Muddy Gut (Buckley Creek), and Bachelor Creek. The Pee Dee River flows through the Great Pee Dee River Swamp throughout the watershed. There are a few recreational ponds (totaling 113.7 acres) and a total of 107.5 stream miles in this watershed, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-337	P	FW	PEE DEE RIVER AT US 301/76

Pee Dee River (PD-337) - Aquatic life uses are not supported due to occurrences of chromium in excess of the aquatic life acute standards, including very high concentrations of chromium measured in 1995 and 1998. In addition, there was a significant decreasing trend in dissolved oxygen and a high concentration of copper measured in 1998. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

A fish consumption advisory has been issued by the Department for mercury and includes the Pee Dee River within this watershed (see advisory p.115).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
PEE DEE RIVER	SC0045462
CITY OF FLORENCE/PEE DEE RIVER PLANT	MAJOR DOMESTIC
PIPE #: 001 FLOW: 15.0	WATER QUALITY
PIPE #: 001 FLOW: 18.0 (PROPOSED)	WATER QUALITY
PIPE #: 001 FLOW: 20.0 (PROPOSED)	WATER QUALITY
WQL FOR DO,NH3N,BOD5	
PEE DEE RIVER	SC0046230
CITY OF MARION/S. MAIN ST. WWTP	MAJOR DOMESTIC
PIPE #: 001 FLOW: 5.0	WATER QUALITY
WQL FOR DO	
PEE DEE RIVER	SC0002917
E.I. DUPONT/FLORENCE PLANT	MAJOR INDUSTRIAL
PIPE #: 001 FLOW: 16.57	WATER QUALITY
WQL FOR DO	
PEE DEE RIVER	SC0000876
STONE CONTAINER CORP.	MAJOR INDUSTRIAL
PIPE #: 001 FLOW: 17.1	WATER QUALITY
WQL FOR DO	

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME	***PERMIT #***
FACILITY TYPE	***STATUS***
STONE CONTAINER CORP.	213310-1601 (213310-1602, IWP-049,
INDUSTRIAL	----- IWP-218, IWP-167, IWP-133)

Land Application Sites

LAND APPLICATION SYSTEM	***ND#***
FACILITY NAME	***TYPE***
SPRAYFIELD	ND0002534
INTERNATIONAL PAPER, INC./MARION	INDUSTRIAL
SPRAYFIELD	ND0065315
TOWN OF SELLERS	DOMESTIC

Mining Activities

MINING COMPANY	***PERMIT #***
MINE NAME	***MINERAL***
WILLIS CONSTRUCTION CO.	0517-41
WILLIS CONSTRUCTION MINE #2	SAND/CLAY

Water Supply

WATER USER (TYPE) ***STREAM***	***REGULATED CAPACITY (MGD)*** ***PUMPING CAPACITY (MGD)***
E.I. DUPONT (I) PEE DEE RIVER	28.8 ------
STONE CONTAINER CORP. (I) PEE DEE RIVER	14.4 ------

Growth Potential

There is a low potential for growth in this watershed, which contains the Town of Sellers and the community of Pee Dee. U.S. Hwys. 76/301, a four-laned corridor to the Grand Strand, crosses the watershed at Pee Dee and runs from the City of Florence to the City of Marion and on to Myrtle Beach. U.S. Hwy. 301 is two-laned from Pee Dee north to Sellers, and is not scheduled for widening in the near future. The City of Marion has an interconnection with the City of Mullins, which may increase growth along the U.S. Hwy. 76 corridor between Marion and Mullins. There is rural water service available from the Marion County Rural Water Company to approximately 30% of the watershed. The only sewer service is limited to the Town of Sellers, which is not capable of extending service unless the system is improved.

03040201-130

(Jeffries Creek)

General Description

Watershed 03040201-130 is located in Florence and Darlington Counties and consists primarily of ***Jeffries Creek*** and its tributaries. The watershed occupies 137,114 acres of the Upper and Lower Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Rains-Norfolk-Wagram series. The erodibility of the soil (K) averages 0.16; the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 38.9% scrub/shrub land, 26.9% agricultural land, 17.2% forested land, 10.7% urban land, 5.7% forested wetland (swamp), and 0.6% water.

Jeffries Creek accepts drainage from Beaverdam Creek, Gulley Branch, Pye Branch, Middle Swamp (Oakdale Lake, Forest Lake, Alligator Branch, Billy Branch), Eastman Branch, and Cane Branch. Polk Swamp Canal (Adams Branch, Twomile Creek, Canal Branch) enters the system downstream, followed by Middle Branch, Long Branch, Boggy Branch, More Branch, and Willow Creek (Little Willow Creek, Cypress Creek, Spring Branch, Claussen Branch). The Jeffries Creek Watershed drains into the Pee Dee River. There are several ponds (totaling 353.2 acres) in this watershed, and a total of 194.8 stream miles. Jeffries Creek and Middle Swamp are classified FW* (dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5) and the remaining streams in the watershed are classified FW.

Water Quality

Station #	Type	Class	Description
PD-255	S	FW*	JEFFRIES CREEK AT SC 340 6.8 MILES SSW OF DARLINGTON
PD-256	S	FW*	JEFFRIES CREEK AT S-21-112 4.8 MILES W OF FLORENCE
PD-065	P	FW	GULLEY BRANCH AT S-21-13, TIMROD PARK
PD-230	S	FW*	MIDDLE SWAMP AT SC 51 3.5 MILES SSE OF FLORENCE
PD-035	S	FW*	JEFFRIES CREEK AT SC 327 AT CLAUSSEN
PD-231	S	FW*	JEFFRIES CK AT UNNUMBERED ROAD 3.3 MILES ESE OF CLAUSSEN
PD-167	W	FW	WILLOW CREEK AT S-21-57

Jeffries Creek - There are four monitoring sites along Jeffries Creek and recreational uses are fully supported at all sites. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations. Aquatic life uses are fully supported at the furthest upstream site ***(PD-255)***. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. There was a significant increasing trend in dissolved oxygen concentration.

Aquatic life uses are also fully supported at the next site downstream ***(PD-256)***. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. A very high concentration of copper was measured in the

1994 sediment sample and P,P' DDT and P,P'DDD (metabolites of DDT) were detected in the 1996 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment.

Further downstream ***(PD-035)***, aquatic life uses are fully supported; however, there is a significant increasing trend turbidity. There is a significant decreasing trend in pH. Aquatic life uses are also fully supported at the furthest downstream site ***(PD-231)***; however, there is a significant increasing trend turbidity. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentration suggest improving conditions for these parameters.

***Gulley Branch (PD-065)* -** Aquatic life uses are not supported due to occurrences of copper and zinc in excess of the aquatic life acute standards, including a high concentration of zinc measured in 1996. A significant decreasing trend in total nitrogen concentration suggests improving conditions for this parameter. Recreational uses are not supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

***Middle Swamp (PD-230)* -** Aquatic life uses are fully supported. This is a secondary monitoring station and sampling is purposely biased towards periods with potentially low dissolved oxygen concentrations. Middle Swamp frequently does not flow at the monitoring location, and although dissolved oxygen excursions occurred, they were typical of values seen in stagnant streams and were considered natural, not standards violations. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions.

***Willow Creek* (PD-167) -** Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH and dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are fully supported.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
BEAVERDAM CREEK GE MEDICAL SYSTEMS/FLORENCE PIPE #: 001 FLOW: 0.084	SC0004171 MINOR INDUSTRIAL EFFLUENT
BEAVERDAM CREEK CITY OF FLORENCE/DARLINGTON ST. WTP PIPE #: 001 FLOW: M/R WQL FOR TRC	SCG645026 MINOR INDUSTRIAL WATER QUALITY

PYE BRANCH CITY OF FLORENCE/PINE ST. WTP PIPE #: 001 FLOW: M/R	SCG645025 MINOR DOMESTIC EFFLUENT
PYE BRANCH KOPPERS INDUSTRIES PIPE #: 001 FLOW: 0.146	SC0003018 MINOR INDUSTRIAL EFFLUENT
PYE BRANCH CSX TRANSPORTATION PIPE #: 001 FLOW: 0.5	SC0001325 MINOR INDUSTRIAL EFFLUENT
POLK SWAMP CANAL CITY OF FLORENCE/EAST FLORENCE WTP PIPE #: 001 FLOW: M/R	SCG645017 MINOR INDUSTRIAL EFFLUENT
LITTLE WILLOW CREEK COMMANDER NURSING CENTER PIPE #: 001 FLOW: 0.025 WQL FOR DO,TRC,NH3N,BOD5	SC0034703 MINOR DOMESTIC WATER QUALITY

Nonpoint Source Management Program

Camp Facilities

FACILITY NAME/TYPE ***RECEIVING STREAM***	***PERMIT #*** ***STATUS***
SWAMP FOX CAMPING, INC./FAMILY MIDDLE SWAMP	21-0239 ACTIVE
JOHNSONS OVERNIGHT CAMPGROUND/FAMILY PYE BRANCH	21-0291 ACTIVE

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
FLORENCE COUNTY LANDFILL MUNICIPAL	211001-1101 (DWP-125) CLOSED
FLORENCE COUNTY C/C LANDFILL MUNICIPAL	211001-1601 (211001-1201, CWP-042) --------
CITY OF FLORENCE TRANSFER STA. MUNICIPAL	212498-6001 ---------
CITY OF FLORENCE DUMP ---------	-------- CLOSED
EI DUPONT INDUSTRIAL	--------- ---------

Land Application Sites

LAND APPLICATION SYSTEM ***FACILITY NAME***	***ND#*** ***TYPE***
PERCOLATION BASIN COLLEGE APTS	ND0063801 DOMESTIC

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
PALMETTO SAND & FILL, INC. PALMETTO SAND #1	0911-31 SAND

Growth Potential

There is a high potential for growth in this watershed, which contains most of the City of Florence. The Florence urban area is the commercial center of the Pee Dee region and is expected to continue to grow, particularly in the I-20/I-95 vicinity on the western edge of Florence, and the major highways leading into the urban area. The watershed is served by U.S. Hwy. 52, U.S. Hwy. 76, I-20, and I-95 as well as the interchange between the interstates to the west of Florence. The construction of a southeastern bypass around the Florence urban area is currently underway and its completion should encourage growth.

This watershed, including the Florence urban area, the Pee Dee River area, and the Hartsville area is expected to be an area of major industrial expansion over the next twenty years. There are several large public or private industrial parks, located along the western side of the Florence urban area, and should foster additional large-scale development. This watershed has extensive water system coverage, including service from the City of Hartsville, the Darlington County Water and Sewer Authority, the City of Florence, and Florence County. The City of Florence has under design a surface water treatment facility on the Pee Dee River that could evolve into a regional water treatment plant. The City of Florence has also expanded its wastewater treatment plant and constructed an outfall to the Pee Dee River, which should increase the availability of sewer service in the watershed and increase the likelihood of additional growth and development. A 700-acre industrial park is also planned for this area and should spur future growth.

03040201-140

(Pee Dee River)

General Description

Watershed 03040201-140 is located in Florence and Marion Counties and consists primarily of the ***Pee Dee River*** and its tributaries from Jeffries Creek to the Lynches River. The watershed occupies 58,604 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Chastain-Tawcaw-Lakeland-Cantey series. The erodibility of the soil (K) averages 0.24; the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 29.5% scrub/shrub land, 29.0% forested wetland, 28.9% forested land, 11.1% agricultural land, 1.3% water, and 0.2% urban land.

This section of the Pee Dee River accepts drainage from its upper reaches, together with Mill Branch, Bigham Branch, Barfield Mill Creek (Barfield Old Mill Creek, Brier Branch), the Catfish Creek Watershed, Bull Swamp (Ford Swamp), and Mulyns Creek. There are several oxbow lakes draining into the river including Dead River, Graves Lake, and Honey Lake. There are a few ponds and lakes (totaling 115.5 acres) in this watershed and a total of 92.2 stream miles, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-076	P	FW	PEE DEE RIVER AT US 378

Pee Dee River (PD-076) - Aquatic life uses are not supported due to occurrences of copper in excess of the aquatic life acute standards, including a very high concentration of copper measured in 1995. In addition, there was a significant decreasing trend in dissolved oxygen, significant increasing trends in total phosphorus concentration and turbidity, and very high concentrations of chromium and zinc measured in 1995. Recreational uses are fully supported; however, there is a significant increasing trend in fecal coliform bacteria concentration.

A fish consumption advisory has been issued by the Department for mercury and includes the Pee Dee River within this watershed (see advisory p.115).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
PEE DEE RIVER	SCG250151
DELTA MILLS MKTG/CYPRESS PLT	MINOR INDUSTRIAL
PIPE #: 001 FLOW: M/R	EFFLUENT

BULL SWAMP B & M AQUACULTURE FARMS PIPE #: 001 FLOW: 2.50 WQL FOR DO,TRC,NH3N,BOD5	SC0043281 MINOR INDUSTRIAL WATER QUALITY
MILL BRANCH DELTA MILLS MKTG/PAMPLICO WWTP PIPE #: 001 FLOW: 0.0092 WQL FOR DO,TRC,NH3N,BOD5	SCG250150 MINOR INDUSTRIAL WATER QUALITY

Nonpoint Source Management Program

Land Disposal Activities

Land Application Sites

LAND APPLICATION SYSTEM ***FACILITY NAME***	***ND#*** ***TYPE***
SPRAYFIELD DELTA MILLS MKTG/PAMPLICO PLT	ND0004472 INDUSTRIAL

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
MARION CERAMICS PEE DEE CERAMICS MINE	0050-67 CLAY
TAW CAW SALES TAW CAW PLANTATION MINE	0889-67 SAND

Water Supply

WATER USER (TYPE) ***STREAM***	***REGULATED CAPACITY (MGD)*** ***PUMPING CAPACITY (MGD)***
DELTA MILLS MKTG (I) PEE DEE RIVER	3.85 -------

Growth Potential

There is a low potential for growth in this rural watershed, which extends across the floodplain of the Pee Dee River. Except for a small portion of the Town of Pamplico, no public water or sewer service is available in the watershed.

03040201-150

(Catfish Creek)

General Description

Watershed 03040201-150 is located in Marion and Dillon Counties and consists primarily of ***Catfish Creek*** and its tributaries. The watershed occupies 111,369 acres of the Upper and Lower Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Norfolk-Coxville-Rains-Fuquay series. The erodibility of the soil (K) averages 0.20; the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 27.9% scrub/shrub land, 27.7% forested land, 21.9% agricultural land, 20.5% forested wetland (swamp), 1.9% urban land, and 0.1% water.

Catfish Canal receives drainage from Stackhouse Creek (Boggy Branch) and flows through Catfish Swamp near the City of Marion. Collins Creek accepts drainage from Smith Swamp (Grassy Bay, Rabbit Bay, Tenmile Bay, Little Horsepen Bay, Big Horsepen Bay, Middle Bay, Wolfpit Bay) and joins Catfish Canal to form the headwaters of Catfish Creek. Catfish Creek then accepts drainage from Flat Swamp, Pitch Pot Swamp (Millrace Stream, Keedley Swamp, Wiggins Swamp), Mink Creek, and Beverly Swamp. The Catfish Creek Watershed drains into the Pee Dee River. There are a few ponds (totaling 67.1 acres) in this watershed and a total of 97.2 stream miles. Catfish Creek and Smith Swamp are classified FW* (dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5) and the remaining streams in the watershed are classified FW.

Water Quality

Station #	Type	Class	Description
PD-320	S	FW*	SMITH SWAMP AT S-34-19 1 MILES E OF MARION
PD-187	P	FW*	SMITH SWAMP AT US 501 1.9 MILES SSE OF MARION
PD-097	S	FW*	CATFISH CREEK AT S-34-34 6 MILES SW OF MARION

Smith Swamp - There are two monitoring sites along Smith Swamp. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions occurred at both sites, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Aquatic life uses are fully supported at the upstream site ***(PD-320)***. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters. At the downstream site ***(PD-187)***, aquatic life uses are not supported due to occurrences of copper in excess of the aquatic life acute standards. There is a significant decreasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters. Recreational uses are partially supported at both sites due to fecal coliform bacteria excursions; however, significant decreasing trends in fecal coliform bacteria concentration suggest improving conditions for this parameter.

Catfish Creek (PD-097) - Aquatic life uses are fully supported; however, there is a significant increasing trend in total phosphorus concentration. This stream frequently does not flow at the monitoring location, and although dissolved oxygen excursions occurred, they were typical of values seen in stagnant streams, especially in channelized situations and were considered natural, not standards violations. P,P' DDT, P,P' DDD, and P,P'DDE are metabolites of DDT. P,P' DDT was detected in the 1994 sediment sample, P,P' DDD was detected in the 1994 and 1998 samples, and P,P'DDE was detected in the 1994, 1995, 1997, and 1998 samples. Also in sediments, the pesticide chlordane was detected in the 1997 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are partially supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria concentration.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
CATFISH CANAL	SCG645023
TRICO/FRED HYATT WTP	MINOR DOMESTIC
PIPE #: 001 FLOW: MR	EFFLUENT
CATFISH CANAL	SCG130002
AL WILLIAMS INDUSTRY	MINOR INDUSTRIAL
PIPE #: 001 FLOW: 4.00	WATER QUALITY
WQL FOR DO,TRC,NH3N,BOD5	

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME	***PERMIT #***
FACILITY TYPE	***STATUS***
CITY OF MARION DUMP	-----------
---------	CLOSED
CITY OF MARION C&D LANDFILL	341003-1201
CONSTRUCTION	----------

Mining Activities

MINING COMPANY	***PERMIT #***
MINE NAME	***MINERAL***
MARION COUNTY	0298-67
BOBBY MACE BORROW PIT	SAND/CLAY
CITY OF MARION	1131-67
COLEMAN MINE	SAND/CLAY
BAKERS BROTHERS OF GRESHAM, INC.	1134-67

Growth Potential

There is a low to moderate potential for growth in this watershed, which contains the City of Marion and is adjacent to the Town of Latta. Commercial development is limited to the City of Marion and portions of U.S. Hwy. 76, particularly east of Marion at the U.S. Hwy. 501 Bypass. Industrial development occurs along U.S. Hwy. 76 and U.S. Hwy. 501 Bypass near Marion. This watershed also contains the Marion Industrial Park and the Latta Industrial Park. U.S. Hwy. 76 and U.S. Hwy. 501 Bypass are four-lane major highways that serve as major access corridors to the Grand Strand and will increase in traffic and development. Water service is provided from the City of Marion and the Marion County Rural Water Company and covers most of the watershed. Sewer service is available to the areas in and around the City of Marion and the Town of Latta.

03040201-160

(Pee Dee River)

General Description

Watershed 03040201-160 is located in Marion, Georgetown, Williamsburg, and Florence Counties and consists primarily of the ***Pee Dee River*** and its tributaries from the Lynches River to the Little Pee Dee River. The watershed occupies 97,818 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Yemassee-Yauhannah-Chastain-Tawcaw series. The erodibility of the soil (K) averages 0.18; the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 41.9% forested land, 24.8% forested wetland, 19.3% agricultural land, 11.7% scrub/shrub land, 1.4% nonforested wetland, 0.8% water, and 0.1% urban land.

This section of the Pee Dee River accepts drainage from its upper reaches, together with Crooked Lake, Negro Lake Run (Maple Swamp), and Clark Creek (Muddy Creek, Mill Creek, Soccee Swamp, Island Branch, Cedar Branch). Apple Orchard Slough and Staple Lake connect Clark Creek to the river. Further downstream, the river accepts drainage from Jacobs Creek, Port Creek (Flat Run Swamp, Boser Swamp, Squirrel Run Bay, Pennyroyal Swamp, Bells Swamp, Tyler Creek), Larrimore Gully, Gravel Gully Branch, and Jordan Lake (Jordan Creek). Dog Lake and several unnamed oxbow lakes drain into the river. There are a total of 155.5 stream miles in this watershed and several ponds (totaling 201.2 acres), all classified FW with the exception of Clark Creek and Muddy Creek, which are classified FW* (dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5).

Water Quality

Station #	Type	Class	Description
PD-060	W	FW	PEE DEE RIVER AT PETERS FIELD LANDING OFF S-22-36

Pee Dee River (PD-060) - Aquatic life and recreational uses are fully supported.

A fish consumption advisory has been issued by the Department for mercury and includes the Pee Dee River within this watershed (see advisory p.115).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
BOSER SWAMP	SC0039195
GCSD/DEEP CREEK ELEM SCHOOL	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.009	WATER QUALITY
WQL FOR DO,TRC,NH3N,BOD5	

FLAT RUN SWAMP GCSD/PLEASANT HILL HIGH SCHOOL PIPE #: 001 FLOW: 0.018 WQL FOR DO,TRC,NH3N,BOD5	SC0039101 MINOR DOMESTIC WATER QUALITY
MAPLE SWAMP CAROLINA SAND INC. PIPE #: 001 FLOW: M/R	SCG730043 MINOR INDUSTRIAL EFFLUENT
CLARK CREEK TOWN OF HEMINGWAY/WWTP PIPE #: 001 FLOW: 0.45 WQL FOR DO,TRC,NH3N,BOD5	SC0039934 MINOR DOMESTIC WATER QUALITY

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
TOWN OF HEMINGWAY DUMP ---------	----------- CLOSED

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
CAROLINA SAND, INC. NECK SAND MINE #2	0899-67 SAND
CAROLINA SAND, INC. BRITTON'S NECK MINE	0725-67 SAND

Water Supply

Portions of this watershed fall within the Waccamaw Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.23).

WATER USER (TYPE) ***STREAM***	***REGULATED CAPACITY (MGD)*** ***PUMPING CAPACITY (MGD)***
INTERNATIONAL PAPER, INC. (I) PEE DEE RIVER	30.0 ------
CITY OF GEORGETOWN (M) PEE DEE RIVER	6.0 12.0

Growth Potential

There is a low potential for growth in this watershed, which contains the Town of Hemingway and the City of Johnsonville. Both municipalities contain water and sewer infrastructure, but outside of the area, the watershed is rural with primarily agricultural uses and timberlands.

03040201-170

(Pee Dee River)

General Description

Watershed 03040201-170 is located in Georgetown and Horry Counties and consists primarily of the ***Pee Dee River*** and its tributaries from the Little Pee Dee River to Winyah Bay. The watershed occupies 78,626 acres of the Lower Coastal Plain and Coastal Zone regions of South Carolina. The predominant soil types consist of an association of the Levy-Chastain-Yemassee-Yauhannah-Tawcaw series. The erodibility of the soil (K) averages 0.25; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 47.0% forested land, 25.8% forested wetland (swamp), 14.1% nonforested wetland (marsh), 5.6% scrub/shrub land, 4.2% water, 2.6% agricultural land, and 0.7% urban land.

This section of the Pee Dee River accepts drainage from its upper reaches, together with Conch Creek (Sally Branch), Bradley Branch (Sheep Pen Branch), and Bull Creek (Cowford Swamp, Horsepen Branch). Also draining into the Pee Dee River are Vandross Bay, Yauhannah Creek (Tupelo Bay), Pole Castle Branch, St. Pauls Branch, Cypress Creek, and Chapel Creek. Little Bull Creek connects Bull Creek to the Pee Dee River and Cooter Creek (Joe Bay) connects Little Bull Creek to Thoroughfare Creek. Streams that connect the Pee Dee River to the Waccamaw River include Bull Creek, Thoroughfare Creek, Guendalose Creek/Bullins Creek, Squirrel Creek, Jericho Creek, and Middleton Cut. Carr Creek and Little Carr Creek connect the Pee Dee River to Jericho Creek. There are a total of 112.9 stream miles in this watershed, 354.0 acres of lakes and ponds, and 1,522.3 acres of estuarine areas. The streams are classified FW from the beginning of the watershed to the Pee Dee River's confluence with Thoroughfare Creek. Downstream of the confluence, the river is classified SB* (dissolved oxygen not less than daily average of 5.0 mg/l with a minimum of 4.0 mg/l) and its tributaries are classified SB.

Water Quality

Station #	Type	Class	Description
PD-061	P	FW	PEE DEE RIVER AT US 701 2.75 MILES NE YAUHANNAH
MD-080	P	SB	WINYAH BAY @ MARKER 92 AT MOUTH OF PEE DEE AND WACCAMAW RIVERS

Pee Dee River* -** There are two monitoring stations along this section of the Pee Dee River. Aquatic life uses are not supported at ***PD-061 due to occurrences of zinc in excess of the aquatic life acute standards, including high concentrations of zinc measured in 1994 and 1997, and a very high concentration of zinc measured in 1995. In addition, there was a significant decreasing trend in dissolved oxygen. Significant decreasing trends in five-day biochemical oxygen demand, total nitrogen concentration, and total suspended solids suggest improving conditions for these parameters. A very high concentration of lead was measured in the 1994 sediment sample. Recreational uses are fully supported.

MD-080 is physically located in this watershed, but also reflects a mixing area of waters including Winyah Bay (03040207-040) and the Waccamaw River (03040206-150). Aquatic life uses are fully supported at ***MD-080***; however, there is a significant decreasing trend in dissolved oxygen. Significant decreasing trends in five-day biochemical oxygen demand and total suspended solids suggest improving conditions for these parameters. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

A fish consumption advisory has been issued by the Department for mercury and includes the Pee Dee River within this watershed (see advisory p.115).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
CHAPEL CREEK	SC0047660
GCW&SD/PLANTERSVILLE WTP	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.001	WATER QUALITY
WQL FOR TRC; UNCONSTRUCTED	

Nonpoint Source Management Program

Mining Activities

MINING COMPANY	***PERMIT #***
MINE NAME	***MINERAL***
JAMES M. MILL, JR.	1073-43
INGLESIDE MINE	SAND/CLAY

Water Supply

Portions of this watershed fall within the Waccamaw Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.23).

WATER USER (TYPE)	***REGULATED CAPACITY (MGD)***
STREAM	***PUMPING CAPACITY (MGD)***
GSW&SA/BULL CREEK REGIONAL WTP (M)	22.0
BULL CREEK	30.0

Growth Potential

There is a low potential for growth in this watershed, except for the area surrounding the City of Georgetown. A permit to expand the Georgetown treatment facility to 9.0 MGD is in process. This will allow Georgetown to incorporate the City of Andrews and Georgetown County with an expansion for the city too. Water infrastructure is located in the Plantersville community and areas closer to the City of Georgetown. The portion of the Georgetown area within this watershed should see primarily commercial and residential growth. Outside of this area, the watershed is predominately rural with some agricultural uses and timberlands.

Watershed Protection and Restoration

Special Projects

Establishment of National Wildlife Refuge in Coastal South Carolina

In 1997, the U.S. Fish and Wildlife Service established the **Waccamaw National Wildlife Refuge**. The refuge extends over portions of the Pee Dee River and the Waccamaw River incorporating this watershed along with portions of watersheds 03040206-140 and 03040206-150. The purpose of the refuge is to protect and manage an important coastal river ecosystem, which includes a significant number of rare and endangered species, and large contiguous blocks of riverine wetlands and bottomland hardwood forests that provide habitat for wetland-dependent wildlife. The refuge also provides compatible wildlife-dependent recreational activities, such as hunting, fishing, wildlife observation, and environmental education. The refuge was established due to the cooperative efforts of the Winyah Bay Focus Area Task Force, a regional coalition of federal and state agencies, industry, conservation organizations, and citizens.

03040203-180

(Lumber River)

General Description

Watershed 03040203-180 (formerly portions of 03040203-215 and -220) is located in Dillon, Horry, and Marion Counties and consists primarily of the ***Lumber River*** and its tributaries from the South Carolina/North Carolina state line to its confluence with the Little Pee Dee River. The watershed occupies 16,631 acres of the Upper and Lower Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Woodington-Norfolk-Yonges-Coxville-Goldsboro series. The erodibility of the soil (K) averages 0.19; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 45.6% forested wetland, 30.6% forested land, 12.7% scrub/shrub land, 11.0% agricultural land, and 0.1% water.

The Lumber River originates in North Carolina and accepts drainage within South Carolina from the Ashpole Swamp Watershed, the Jordan Creek Watershed, and Boggy Branch (Pew Branch). There are several ponds (totaling 5.1 acres) in this watershed and a total of 37.9 stream miles, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-038	P	FW	LUMBER RIVER AT US 76 AT NICHOLS

Lumber River (PD-038) - Aquatic life uses are fully supported; however, there is a significant decreasing trend in dissolved oxygen and a significant increasing trend in turbidity. There is a significant increasing trend in pH. This is a blackwater system, characterized by naturally low pH. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Di-n-butylphthalate was detected in the 1995 sediment sample. Recreational uses are fully supported.

A fish consumption advisory has been issued by the Department for mercury and includes the Lumber River within this watershed (see advisory p.115).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
LUMBER RIVER	SC0041327
TOWN OF NICHOLS WWTP	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.135	EFFLUENT

Water Supply

Portions of this watershed fall within the Waccamaw Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.23).

Growth Potential

There is a low potential for growth in this watershed, which contains the Town of Nichols. An extensive rural water system serves the majority of the watershed, but sewer services are limited to the Town of Nichols. U.S. Hwy. 76 crosses the watershed (through the Town of Nichols), but it is a two-lane road with no plans for improvement. A railway line crosses the watershed, but there are no industrial areas located in this region.

03040203-200

(Jordan Creek)

General Description

Watershed 03040203-200 (formerly 03040203-220) is located in Horry County and consists primarily of ***Jordan Creek*** and its tributaries. The watershed occupies 20,867 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Woodington-Yonges-Goldsboro-Norfolk series. The erodibility of the soil (K) averages 0.16; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 32.3% forested land, 22.4% agricultural land, 22.4% scrub/shrub land, 22.3% forested wetland (swamp), 0.3% water, and 0.3% urban land.

Jordan Creek drains out of Feathery Bay and through Granger Pond before accepting drainage from Gapway Swamp and Hook Branch. There are several ponds (totaling 65.5 acres) used for recreation and irrigation purposes in this watershed and a total of 10.8 stream miles, all classified FW.

Water Quality

No water quality monitoring occurred in this watershed.

Water Supply

Portions of this watershed fall within the Waccamaw Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.23).

Growth Potential

There is a low potential for growth in this watershed.

03040203-210

(Ashpole Swamp)

General Description

Watershed 03040203-210 (formerly 03040203-215) is located in Dillon County and consists primarily of ***Ashpole Swamp*** and its tributaries. The watershed occupies 40,434 acres of the Upper Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Norfolk-Coxville-Rains series. The erodibility of the soil (K) averages 0.22; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 35.5% agricultural land, 24.5% forested land, 23.2% forested wetland, 16.0% scrub/shrub land, 0.5% water, and 0.3% urban land.

Ashpole Swamp originates in North Carolina and flows across the border to receive drainage from Bear Swamp before flowing into the Lumber River. Canaan Branch (Roundabout Swamp) and Gully Branch (Beaverdam Creek) join in Gaddys Millpond and flow into Bear Swamp, which flows through Pages Millpond and accepts drainage from Cowpen Swamp before draining into Ashpole Swamp. There are several ponds (totaling 206.8 acres) in this watershed, and a total of 58.4 stream miles. Ashpole Swamp and Bear Swamp are classified FW* (dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5), and the remaining streams are classified FW.

Water Quality

Station #	Type	Class	Description
PD-347	W	FW*	ASHPOLE SWAMP AT PRIVATE ROAD

Ashpole Swamp (PD-347) - Aquatic life uses are fully supported. This is a blackwater swamp system, characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater swamps and were considered natural, not standards violations. Recreational uses are fully supported.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM FACILITY NAME PERMITTED FLOW @ PIPE (MGD) COMMENT	***NPDES# TYPE LIMITATION***
BEAR SWAMP TOWN OF LAKE VIEW PIPE #: 001 FLOW: 0.20 WQL FOR DO,TRC,NH3N,BOD5	SC0022284 MINOR DOMESTIC WATER QUALITY

Growth Potential

There is a low potential for growth in this watershed, which contains the Town of Lake View. An extensive rural water system serves the majority of the watershed, but sewer services are limited to the Town of Lake View.

03040204-010

(Little Pee Dee River)

General Description

Watershed 03040204-010 (formerly 03040204-015) is located in Marlboro, Dillon, and Marion Counties and consists primarily of the ***Little Pee Dee River*** and its tributaries from its origin to Leith Creek. The watershed occupies 29,764 acres of the Upper Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Norfolk-Lakeland-Wagram series. The erodibility of the soil (K) averages 0.14; the slope of the terrain averages 5%, with a range of 0-15%. Land use/land cover in the watershed includes: 44.8% agricultural land, 34.9% scrub/shrub land, 11.2% forested land, 8.1% forested wetland (swamp), and 1.0% water.

This upper reach of the Little Pee Dee River accepts drainage from several tributaries that originate in North Carolina. Beaverdam Creek flows through McNairs Millpond and accepts drainage from Parker Branch, Marsnip Branch, McLaurins Millpond, and Panther Creek (Bear Creek) before merging with Gum Swamp to form Red Bluff Lake and the headwaters of the Little Pee Dee River. Reedy Branch enters the river next before converging with the Leith Creek Watershed. There are numerous lakes and ponds (totaling 186.4 acres) used for recreation, irrigation, and industrial purposes in this watershed and a total of 33.6 stream miles, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-306	S	FW	PANTHER CREEK AT US 15 OUTSIDE MCCOLL
PD-016	S	FW	PANTHER CREEK AT S-35-27
PD-017A	S	FW	MCLAURINS MILL POND SC 381
PD-062	S	FW	GUM SWAMP
PD-365	W	FW	LITTLE PEE DEE RIVER AT S-17-363

Panther Creek - There are two monitoring sites along Panther Creek. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH and dissolved oxygen excursions occurred at both sites, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Aquatic life uses are fully supported at the upstream site ***(PD-306)***; however, there is a significant increasing trend in turbidity. There is a significant increasing trend in pH. Recreational uses are fully supported; however, there is a significant increasing trend in fecal coliform bacteria concentration.

At the downstream site ***(PD-016)***, aquatic life uses are also fully supported. A significant increasing trend in dissolved oxygen and a significant decreasing trend in five-day biochemical oxygen demand suggest improving conditions for these parameters. Recreational uses are fully supported.

McLaurins Mill Pond (PD-017A) - Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH and dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. There is a significant increasing trend in pH. A significant increasing trend in dissolved oxygen suggests improving conditions for this parameter. Recreational uses are fully supported, and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Gum Swamp *(PD-062)* - Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH and dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. A significant increasing trend in dissolved oxygen suggests improving conditions for this parameter. Recreational uses are fully supported.

Little Pee Dee River (PD-365) - Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are fully supported.

A fish consumption advisory has been issued by the Department for mercury and includes the Little Pee Dee River within this watershed *(**see advisory p.115**).*

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
GUM SWAMP TOWN OF MCCOLL/WWTP PIPE #: 001 FLOW: 0.400	SC0041963 MINOR DOMESTIC EFFLUENT

Growth Potential

There is a low potential for growth in this watershed, which contains the Town of McColl. The Town of McColl has water and sewer service in and immediately surrounding the town, which could encourage some growth.

03040204-020

(Leith Creek)

General Description

Watershed 03040204-020 (formerly 03040204-029) is located in Marlboro and Dillon Counties and consists primarily of ***Leith Creek*** and its tributaries. The watershed occupies 1,392 acres of the Upper Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Johnston-Meggett-Dorovan series. The erodibility of the soil (K) averages 0.20; the slope of the terrain averages 2%, with a range of 0-3%. Land use/land cover in the watershed includes: 31.8% forested land, 30.3% agricultural land, 20.4% scrub/shrub land, and 17.5% forested wetland (swamp).

Leith Creek originates in North Carolina and drains into the Little Pee Dee River Watershed. There are a total of 2.3 stream miles in this watershed, all classified FW.

Water Quality

No water quality monitoring occurred in this watershed.

Growth Potential

There is a low potential for growth in this watershed.

03040204-030

(Little Pee Dee River)

General Description

Watershed 03040204-030 is located in Marlboro and Dillon Counties and consists primarily of the ***Little Pee Dee River*** and its tributaries from Leith Creek to Buck Swamp. The watershed occupies 107,949 acres of the Upper Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Lakeland-Norfolk-Johnston series. The erodibility of the soil (K) averages 0.15; the slope of the terrain averages 4%, with a range of 0-15%. Land use/land cover in the watershed includes: 33.5% agricultural land, 24.2% forested land, 21.3% scrub/shrub land, 16.6% forested wetland (swamp), 3.9% urban land, and 0.5% water.

This section of the Little Pee Dee River accepts the drainage of its upper reach along with the Leith Creek Watershed, Carolina Branch, the Shoe Heel Watershed, and Martins Branch. Sweat Swamp (Wash Branch, Donohoe Bay, Beaverdam Creek) enters the river next, followed by Hayes Swamp (Persimmon Swamp), Ropers Mill Branch, Manning Bay, and Maple Swamp near the City of Dillon. Contrary Swamp originates in South Carolina and drains into North Carolina near Hayes Swamp. Cypress Branch drains into the Little Pee Dee River downstream of Maple Swamp together with Kelly Bay, Cane Branch (Boggy Branch), Bell Swamp Branch (Butler Branch, Long Branch, Indian Pot Branch, Poplar Branch, Little Pee Dee State Park Pond), Hayes Branch, Mile Branch, and Hards Branch. Little Pee Dee State Park is located on the river near the confluence with Cane Branch and extends over to Bell Branch Swamp. There are numerous lakes and ponds (totaling 213.5 acres) in this watershed and a total of 152.5 stream miles. Maple Swamp is classified FW* (dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5), and the remaining streams in the watershed are classified FW.

Water Quality

Station #	Type	Class	Description
PD-069	P	FW	LITTLE PEE DEE RIVER AT SC 57 11.5 MILES NW DILLON
PD-029E	S	FW	LITTLE PEE DEE RIVER AT S-17-23
PD-055	S	FW	LITTLE PEE DEE RIVER AT SC 9
PD-030	S	FW*	MAPLE SWAMP AT SC 57
PD-030A	S	FW	LITTLE PEE DEE RIVER BELOW JUNCTION WITH MAPLE SWAMP
PD-348	W	FW	LITTLE PEE DEE RIVER AT S-17-72

Little Pee Dee River* -** There are five monitoring sites along this section of the Little Pee Dee River. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Aquatic life uses are fully supported at the furthest upstream site ***(PD-069); however, there is a significant increasing trend in turbidity. There was also a high concentration of zinc measured in 1996. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. P,P'DDT and P,P'DDE (metabolites of DDT) were detected in the 1994 sediment sample, P,P'DDE was detected in the 1997 sample, and P,P'DDT was detected in the 1998 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are fully supported; however, there is a significant increasing trend in fecal coliform bacteria concentration.

At the next site downstream ***(PD-029E)***, aquatic life uses are fully supported; however, there is a significant increasing trend in turbidity. There is a significant increasing trend in pH. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. A significant increasing trend in dissolved oxygen suggests improving conditions for this parameter. Recreational uses are fully supported.

Further downstream ***(PD-055)***, aquatic life uses are fully supported; however, a high concentration of zinc and a very high concentration of copper were measured in 1994, compounded by a significant increasing trend in turbidity. There is a significant increasing trend in pH. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. A significant decreasing trend in five-day biochemical oxygen demand and total phosphorus concentration suggest improving conditions for these parameters. Recreational uses are fully supported.

Aquatic life uses are fully supported at ***PD-030A***; however, there is a significant increasing trend in turbidity. Although pH and dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. P,P'DDT was detected in the 1994 sediment sample, a very high concentration of zinc and a very high concentration of copper were measured in the 1995 sample, and P,P'DDE was detected in the 1997 sample. Recreational uses are fully supported.

At the furthest downstream site ***(PD-348)***, aquatic life uses are fully supported. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are fully supported.

Maple Swamp (PD-030) - Aquatic life uses are not supported due to dissolved oxygen excursions, compounded by a significant increasing trend in turbidity. There is a significant decreasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Little Pee Dee State Park Pond - The pond has been treated with aquatic herbicides from 1989-1992 and again from 1994-1996 in an attempt to control aquatic plants and provide access for swimming and boating. The Little Pee Dee State Park pond is scheduled to be treated with aquatic herbicides again in 2000.

A fish consumption advisory has been issued by the Department for mercury and includes the Little Pee Dee River within this watershed (see advisory p.115).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
LITTLE PEE DEE RIVER CITY OF DILLON PIPE #: 001 FLOW: 5-10 WQL FOR DO,TRC,NH3N,BOD5	SC0021776 MAJOR DOMESTIC WATER QUALITY
LITTLE PEE DEE RIVER TRICO/HAMER WTP PIPE #: 001 FLOW: 0.0468 WQL FOR TRC	SCG645031 MINOR DOMESTIC WATER QUALITY
LITTLE PEE DEE RIVER ANVIL KNITWEAR/DILLON DISTR CTR PIPE #:001 FLOW: M/R	SC0047511 MINOR INDUSTRIAL EFFLUENT
HAYES SWAMP SOUTH OF THE BORDER PIPE #: 001 FLOW: 0.155 WQL FOR DO,TRC,NH3N,BOD5	SC0031801 MINOR DOMESTIC WATER QUALITY
ROPERS MILL BRANCH TRICO/BOBBY BYRD WTP PIPE #: 001 FLOW: 0.0764 WQL FOR TRC	SCG645022 MINOR DOMESTIC WATER QUALITY
LONG BRANCH TRICO/BERMUDA WTP PIPE #: 001 FLOW: 0.0346 WQL FOR TRC; UNCONSTRUCTED	SCG645021 MINOR DOMESTIC WATER QUALITY

Nonpoint Source Management Program

Camp Facilities

FACILITY NAME/TYPE ***RECEIVING STREAM***	***PERMIT #*** ***STATUS***
LITTLE PEE DEE STATE PARK/FAMILY CAMP BELL SWAMP BRANCH	17-0004 ACTIVE
BASS LAKE RV CAMPGROUND, INC./FAMILY CAMP LITTLE PEE DEE RIVER	17-0009 ACTIVE
PEDROS CAMPGROUND/FAMILY CAMP HAYES SWAMP	17-0005 ACTIVE

Land Disposal Activities

Landfill Facilities

LANDFILL NAME / *FACILITY TYPE*	*PERMIT #* / *STATUS*
DILLON COUNTY LANDFILL MUNICIPAL	DWP-014 (DWP-118, 171001-1202, 161001-6001) CLOSED
DILLON COUNTY C&D LANDFILL CONSTRUCTION	171901-1301 -----------
DILLON COUNTY INDUSTRIAL LANDFILL INDUSTRIAL	171001-1601 (171001-1201) CLOSED
301 FARM SHORT-TERM LANDFILL -------	172900-1301 ---------

Mining Activities

MINING COMPANY / *MINE NAME*	*PERMIT #* / *MINERAL*
BAKER BROTHERS OF GRESHAM, INC. GRESHAM	0959-33 SAND/CLAY
WILLARD BARKER, JR. MILLER	0955-33 SAND/CLAY

Growth Potential

There is a moderate potential for growth in this watershed, which contains the City of Dillon. The main growth area for the watershed is the City of Dillon, with development concentrated in the downtown area, the area south of Dillon, and at two interstate interchanges (I-95/S.C. Hwy. 34 and I-95/S.C. Hwy. 9). Industrial development is extensive, mostly in the urban fringe area north of Dillon. Due to water and sewer improvements, additional growth in this industrial corridor is likely. Water service includes a moderately extensive rural system associated with the Trico Water Company and the City of Dillon. Public sewer service is more limited, serving only Dillon and the urban fringe surrounding it. The City of Dillon has undergone a wastewater treatment plant upgrade, and an expansion of sewer service is now likely.

03040204-040

(Shoe Heel Creek)

General Description

Watershed 03040204-040 (formerly 03040204-049) is located in Dillon County and consists primarily of Shoe Heel Creek and its tributaries. The watershed occupies 2,202 acres of the Upper Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Lakeland-Aycock-Norfolk series. The erodibility of the soil (K) averages 0.10; the slope of the terrain averages 4%, with a range of 0-15%. Land use/land cover in the watershed includes: 30.2% scrub/shrub land, 26.8% forested land, 21.8% agricultural land, 20.6% forested wetland, and 0.6% water.

Shoe Heel Creek originates in North Carolina and drains into the Little Pee Dee River Watershed. There are a total of 6.3 stream miles in this watershed, all classified FW.

Water Quality

No water quality monitoring occurred in this watershed.

Growth Potential

There is a low potential for growth in this watershed.

03040204-050

(Buck Swamp)

General Description

Watershed 03040204-050 is located in Dillon, Marlboro, and Marion Counties and consists primarily of ***Buck Swamp*** and its tributaries. The watershed occupies 97,539 acres of the Upper and Lower Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Smithboro-Persanti-Norfolk-Aycock series. The erodibility of the soil (K) averages 0.24; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 33.2% agricultural land, 26.7% forested land, 20.0% scrub/shrub, 18.1% forested wetland (swamp), land, 1.8% urban land, and 0.2% water.

Reedy Creek (Indigo Bay, Eli Branch, Old Mill Creek, Betsy Jackson Bay) and Little Reedy Creek (Hilson Bay) join to form the headwaters of Buck Swamp near the Town of Latta. Downstream of the confluence, Mill Creek enters the system followed by The Gully and Maidendown Swamp (Piney Bay, Maidendown Bay). The Buck Swamp Watershed drains into the Little Pee Dee River. There are a few ponds (totaling 47.0 acres) purposes in this watershed, and a total of 175.7 stream miles. Buck Swamp and Maidendown Swamp are classified FW* (dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5) and the remaining streams in the watershed are classified FW.

Water Quality

Station #	Type	Class	Description
PD-031	S	FW*	BUCK SWAMP AT S-17-33
PD-349	W	FW*	BUCK SWAMP AT S-17-42

Buck Swamp **-** There are two monitoring sites along Buck Swamp ***(PD-031, PD-349)***. Aquatic life and recreational uses are fully supported at both sites. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions occurred at both sites, they were typical of values seen in blackwater systems and were considered natural, not standards violations. At the upstream site ***(PD-031)***, significant decreasing trends in five-day biochemical oxygen demand, turbidity, and fecal coliform bacteria concentration suggest improving conditions for these parameters.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
BUCK SWAMP TOWN OF LATTA PIPE #: 001 FLOW: 0.60 PIPE #: 001 FLOW: 1.0 (PROPOSED) WQL FOR DO,TRC,NH3N,BOD5	SC0025402 MINOR DOMESTIC WATER QUALITY WATER QUALITY
MAIDENDOWN SWAMP AVM, INC. PIPE #: 001 FLOW: 0.210 WQL FOR DO,TRC,NH3N,BOD5	SCG250108 MINOR INDUSTRIAL WATER QUALITY

Growth Potential

There is a low potential for growth in this watershed, which contains the Towns of Latta and Zion, and a portion of the City of Mullins. Commercial development is confined to the two municipalities and the interchange of I-95 and S.C. Hwy. 34. Public water service exists in and around the Town of Latta and in Mullins and the rural area north of Mullins. Public sewer is more limited, and includes only the municipal limits of Latta and Mullins and their very immediate surroundings. No major expansion of water or sewer coverage is anticipated.

03040204-060

(Little Pee Dee River)

General Description

Watershed 03040204-060 is located in Dillon and Marion Counties and consists primarily of the ***Little Pee Dee River*** and its tributaries from Buck Swamp to the Lumber River. The watershed occupies 13,551 acres of the Upper Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Norfolk-Lakeland-Coxville-Rains series. The erodibility of the soil (K) averages 0.10; the slope of the terrain averages 4%, with a range of 0-15%. Land use/land cover in the watershed includes: 34.8% agricultural land, 27.2% forested land, 20.7% forested wetland (swamp), and 17.3% scrub/shrub land.

This section of the Little Pee Dee River accepts drainage from its upstream reaches along with several unnamed tributaries before merging with the Lumber River Watershed. There are a total of 9.1 stream miles and a few ponds (totaling 20.5 acres), all classified FW.

Water Quality

Station #	Type	Class	Description
PD-052	P	FW	LITTLE PEE DEE AT S-34-60

Little Pee Dee River (PD-052) - Aquatic life uses are fully supported; however, there was a very high concentration of zinc measured in 1995. This is a blackwater system, characterized by naturally low pH. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. There is a significant increasing trend in pH. Significant decreasing trends in total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are fully supported, and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

A fish consumption advisory has been issued by the Department for mercury and includes the Little Pee Dee River within this watershed (see advisory p.115).

Growth Potential

There is a low potential for growth in this watershed.

03040204-070

(Little Pee Dee River)

General Description

Watershed 03040204-070 is located in Marion and Horry Counties and consists primarily of the ***Little Pee Dee River*** and its tributaries from the Lumber River to its confluence with the Pee Dee River. The watershed occupies 178,667 acres of the Upper and Lower Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Johnston-Meggett-Dorovan-Norfolk series. The erodibility of the soil (K) averages 0.20; the slope of the terrain averages 2%, with a range of 0-3%. Land use/land cover in the watershed includes: 34.7% forested land, 26.4% forested wetland (swamp), 17.2% scrub/shrub land, 15.4% agricultural land, 5.2% nonforested wetland (marsh), 0.6% urban land, and 0.5% water.

This section of the Little Pee Dee River accepts drainage from its upper reach, together with Brown Swamp (White Oak Creek, Fowler Branch), the Lake Swamp Watershed, Dawsey Swamp, Tredwell Swamp (Mill Swamp), The Falls, Back Swamp (Fox Bay), and Sandy Slough. Little Reedy Creek (Cane Bay, Mill Bay) merges with Reedy Creek (Big Sister Bay, Little Sister Bay, Reedy Creek Bay) in Smith Millpond and then flows through Leggett Millpond before draining into the Little Pee Dee River downstream of Sandy Slough. Further downstream, Cypress Creek enters the river, followed by Marsh Creek, Alligator Run, the Brunson Swamp Watershed, and Giles Bay.

Singleton Creek (Dwight Creek, Red Hill Branch, Alfred Creek, Bunker Hill Creek, Church Branch, Running Branch) drains into Brown Swamp as does Brown Bay, Knotty Branch, Cooper Branch, Davis Branch, Juniper Bay, Calhoun Branch, Todd Mill Branch, Lewis Mill Branch, and Alkinson Branch. Brown Swamp then flows through Jordan Lake and Old River Lake before entering the river. Hunting Swamp (Boyd Canal, Jenkins Swamp, Cedar Grove Branch, Cates Bay, Forney Branch, Brownway Branch, Big Cypress Swamp, Sarah Branch, Pawley Swamp) enters the system at the base of the watershed followed by Russ Creek (Jiles Creek, Russ Lake) near the Brittons Neck area. Several oxbow lakes drain into the Little Pee Dee River including Cox Lake, Gerald Lake, Newfound Lake, Gunter Lake, Johnson Big Lake, Cannon Lake, Jordan Lake, Old River Lake, Richard Lake, Sampson Lakes, and Dead River. There are several lakes and ponds (totaling 657.6 acres) in this watershed, and a total of 230.9 stream miles. All streams in the watershed are classified ORW with the following exceptions: Brown Swamp and White Oak Creek in the upper portion of the watershed, and another Brown Swamp further downstream are classified FW* (dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5) and their tributaries are classified FW; Hunting Swamp and its tributaries are classified FW.

Water Quality

Station #	Type	Class	Description
PD-037	S	FW*	WHITE OAK CREEK AT S-34-31
PD-042	P	ORW	LITTLE PEE DEE RIVER AT US 501, GALIVANT'S FERRY
PD-189	P	ORW	LITTLE PEE DEE RIVER AT US 378 12 MILES W. CONWAY

PD-350	W	ORW	LITTLE PEE DEE RIVER AT PUNCHBOWL LANDING

White Oak Creek (PD-037) - Aquatic life uses are partially supported due to dissolved oxygen excursions, compounded by a significant decreasing trend in dissolved oxygen and significant increasing trends in five-day biochemical oxygen demand, total phosphorus concentration, and turbidity. There is a significant decreasing trend in pH. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations; however, the decreasing trend in dissolved oxygen suggests that conditions are deteriorating. Recreational uses are not supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria concentration.

Little Pee Dee River - There are three monitoring sites along this section of the Little Pee Dee River. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. At the furthest upstream site ***(PD-042)***, aquatic life uses are not supported due to occurrences of copper in excess of the aquatic life acute standards. In addition, there was a significant increasing trend in turbidity, and a very high concentration of zinc measured in 1995. Although pH and dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and considered natural, not standards violations. Significant decreasing trends in total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are fully supported.

Further downstream ***(PD-189)***, aquatic life uses are fully supported; however, there was a significant decreasing trend in dissolved oxygen, a significant increasing trend in turbidity, and a high concentration of chromium measured in 1995. The decreasing trend in dissolved oxygen suggests that conditions are deteriorating for this parameter. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand, total phosphorus concentration, and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are fully supported; however, there is a significant increasing trend in fecal coliform bacteria concentration.

At the furthest downstream site ***(PD-350)***, aquatic life uses are fully supported. Although pH and dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are fully supported.

The Little Pee Dee River was treated with aquatic herbicides in 1989, 1990, 1992-1994, and 1997-1999 in order to control aquatic plants and provide access to the main river, tributaries, and lakes.

*A fish consumption advisory has been issued by the Department for mercury and includes the Little Pee Dee River within this watershed (**see advisory p.115**).*

NPDES Program
Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
LITTLE PEE DEE RIVER TRIBUTARY LOCUST TREE DEVELOPMENT PIPE #: 001 FLOW: 0.0292 WETLAND; WQL FOR DO,TRC,NH3N,BOD5	SC0035203 MINOR DOMESTIC WATER QUALITY
WHITE OAK CREEK CITY OF MULLINS/WHITE OAK CK WWTP PIPE #: 001 FLOW: 2.75 WQL FOR DO,TRC,NH3N,BOD5	SC0029408 MAJOR DOMESTIC WATER QUALITY
CYPRESS CREEK B & M AQUACULTURE FARMS PIPE #: 001 FLOW: 2.50 WQL FOR DO,TRC,NH3N,BOD5	SC0043281 MINOR INDUSTRIAL WATER QUALITY
LITTLE REEDY CREEK APAC-CAROLINA/RAINES PLT PIPE #: 001 FLOW: M/R	SCG730025 MINOR INDUSTRIAL WATER QUALITY

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
MARION COUNTY LANDFILL MUNICIPAL	DWP-068 CLOSED
CITY OF MULLINS CONSTRUCTION	041101-1102 (341002-1201, ACTIVE DWP-912, DWP-047)

Land Application Sites

LAND APPLICATION SYSTEM ***FACILITY NAME***	***ND#*** ***TYPE***
SPRAYFIELD TOWN OF CENTENARY	ND0069361 DOMESTIC

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
BAKER BROTHERS OF GRESHAM, INC. HARRELSON	0936-67 SAND/CLAY
APAC-CAROLINA, INC. RAINS	0977-67 SAND
CAROLINA SAND, INC. PEE DEE MINE	0707-67 SAND

WEAVER CO., INC. CANNON SPRING MINE	0467-51 LIMESTONE
WEAVER CO., INC. JOHNSTON MINE	1077-51 SAND/CLAY
G & C, INC. G & C PIT	0222-51 LIMESTONE
CAVU, INC. BUCK MINE	1046-51 SAND
SUBMIT, INC. BRITTONS NECK NO.2	1146-67 SAND/CLAY

Water Supply

Portions of this watershed fall within the Waccamaw Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.23).

Growth Potential

There is a low potential for growth in this watershed, which contains the Towns of Centenary and Rains, and a portion of the City of Mullins. The Town of Aynor is adjacent to the watershed. A portion of the U.S. Hwy. 501 corridor running from the City of Marion to the City of Conway crosses this watershed. Water infrastructure is located in and around the Town of Aynor, but only the U.S. Hwy. 501 corridor in the Town of Aynor is sewered. There are plans to construct sewerage infrastructure along U.S. Hwy. 501 from Aynor to Conway. It is likely that additional residential, commercial, and industrial development will occur along this corridor in the future. Another highway corridor that may encourage commercial and industrial growth in the watershed is U.S. Hwy. 76 between the Cities of Marion and Mullins. This corridor has both water and sewer services and contains prime industrial properties. There is a relatively extensive rural water system serving the watershed, and an extension of this system into the Britton's Neck area is scheduled over the next several years. Sewer service is limited to the Mullins urban area and a small rural system in the Centenary area.

03040204-080

(Lake Swamp)

General Description

Watershed 03040204-080 is located in Horry County and consists primarily of ***Lake Swamp*** and its tributaries. The watershed occupies 138,763 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Woodington-Goldsboro-Nansemond-Yonges-Norfolk series. The erodibility of the soil (K) averages 0.16; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 32.8% forested land, 26.0% scrub/shrub land, 23.5% forested wetland, 16.9% agricultural land, 0.6% urban land, 0.1% water, and 0.1% nonforested wetland.

Cedar Creek (Cow Bog, Juniper Bay, Spring Bay, Mossy Bay, Back Swamp, Cartwheel Branch, Cartwheel Bay, Fifteenmile Bay, Jet Branch), Black Creek (Flat Bay), and Turkey Pen Swamp (Gunter Bay, Hannah Bay, Wolf Pit Bay, Mill Bay) drain into the Little Pee Dee River just upstream of Lake Swamp. Cartwheel Bay is a Heritage Trust Preserve. All the above waterbodies take on the classification of the Little Pee Dee River, which is ORW. Gerald Lake connects this upstream drainage to Lake Swamp.

Mitchell Swamp accepts drainage from Haggins Creek (Calf Ford Branch), Savannah Branch, Mill Branch, Seed Tick Branch, Iron Springs Swamp (Iron Springs Bay, Bobs Branch, Pinelog Branch), and Long Branch. Mitchell Swamp joins with Pleasant Meadow Swamp (Gaskins Branch, Holmes Branch, Spring Branch, Big Branch, Fifth Branch, Rooty Branch) to form the headwaters of Lake Swamp. Downstream of the confluence, Playcard Swamp (Zeeks Branch, Pasture Branch, Chickencoop Branch, Daniel Hole Branch, Leather String Branch) enters the system followed by Breakfast Swamp, Prince Mill Swamp (Little Mill Branch, Big Mill Branch, Limerick Branch), Honey Camp Branch, Rattlesnake Branch, and Reedy Branch. Joiner Swamp (Long Branch, Joiner Bay, Bogue Bay) enters Lake Swamp next followed by Loosing Swamp (Watery Bay, Turf Camp Bay, Mose Swamp, Horsepen Bay). Loosing Swamp enters the system through Johnny Lake located on Lake Swamp downstream of Joiner Swamp. Skeebo Branch originates in South Carolina within this watershed and drains into Grissett Swamp in North Carolina. The Lake Swamp Watershed drains into the Little Pee Dee River. There are several lakes and ponds (173.8 acres) in this watershed, and a total of 221.3 stream miles. Lake Swamp and Pleasant Meadow Swamp are classified FW* (dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5); their tributaries and the remaining streams in the watershed, excepting Cedar Creek and its tributaries, are classified FW.

Water Quality

Station #	Type	Class	Description
PD-351	W/BIO	ORW	CEDAR CREEK AT S-26-23
PD-176	W	FW*	LAKE SWAMP AT S-26-99

Cedar Creek (PD-351) - Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH and dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Lake Swamp (PD-176) - Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. There was a significant increasing trend in dissolved oxygen. Recreational uses are fully supported.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
PLEASANT MEADOWS SWAMP	SC0025348
CITY OF LORIS WWTP	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.70	WATER QUALITY
PIPE #: 001 FLOW:1.0 (PROPOSED)	WATER QUALITY
PIPE #: 001 FLOW:1.2 (PROPOSED)	WATER QUALITY
WQL FOR DO,TRC.NH3N,BOD5	

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME	***PERMIT #***
FACILITY TYPE	***STATUS***
CITY OF LORIS DUMP	----------
--------	CLOSED
WACCAMAW WHEEL	262489-5201
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Land Application Sites

LAND APPLICATION SYSTEM	***ND#***
FACILITY NAME	***TYPE***
SPRAYFIELD	ND0066516
GSW&SA/GREEN SEA FLOYDS HIGH SCHOOL	DOMESTIC

Mining Activities

MINING COMPANY *MINE NAME*	*PERMIT #* *MINERAL*
BLACK CREEK MINING CO. BLACK CREEK MINE	1003-51 SAND

Water Supply

Portions of this watershed fall within the Waccamaw Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.23).

Growth Potential

There is a low potential for growth in this watershed, which contains the City of Loris. Water and sewer infrastructure are located in the City of Loris, and water service is available along the U.S. Hwy. 701 corridor to the City of Conway. Outside of Loris, the area is predominately rural with agricultural uses and timberlands.

03040204-090

(Brunson Swamp)

General Description

Watershed 03040204-090 is located in Horry County and consists primarily of ***Brunson Swamp*** and its tributaries. The watershed occupies 53,116 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Rains-Lynchburg-Yonges-Goldsboro-Nansemond series. The erodibility of the soil (K) averages 0.17; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 35.6% forested land, 23.5% scrub/shrub land, 20.8% agricultural land, and 20.1% forested wetland (swamp).

Brunson Swamp accepts drainage from Chinners Swamp (Rabon Branch, Mill Branch, Savannah Creek, Big Swamp, Schoolhouse Branch, Evans Branch), Spring Swamp (Holly Hill Branch), and Palmetto Swamp (Little Palmetto Swamp, Ratan Branch) before draining into the Little Pee Dee River. There are a total of 94.3 stream miles and several ponds (totaling 79.7 acres) in this watershed. All are classified FW with the exception of Chinners Swamp, which is classified FW* (dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5).

Water Quality

Station #	Type	Class	Description
PD-177	S	FW*	CHINNERS SWAMP AT S-26-24 1.9 MILES SSE AYNOR
PD-352	W	FW*	CHINNERS SWAMP AT GUNTERS ISLAND ROAD OFF S-26-99

Chinners Swamp* -** There are two monitoring sites along Chinners Swamp. This is a blackwater swamp system, characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions occurred at both sites, they were typical of values seen in blackwater swamps and were considered natural, not standards violations. At the upstream site ***(PD-177), aquatic life uses are fully supported, and a significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported. At the downstream site ***(PD-352)***, aquatic life uses are also fully supported, but recreational uses are partially supported due to fecal coliform bacteria excursions.

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME / ***FACILITY TYPE***	***PERMIT #*** / ***STATUS***
TOWN OF AYNOR DUMP	-----------
--------	CLOSED

Water Supply

Portions of this watershed fall within the Waccamaw Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.23).

Growth Potential

There is a low potential for growth for most of this watershed. An exception is the U.S. Hwy. 501 corridor that bisects the watershed. This heavily traveled road connects I-95 with Myrtle Beach, and an increase in residential and commercial growth is likely. The Town of Aynor has been connected to the Grand Strand Water and Sewer Authority Conway wastewater plant which should encourage growth. The northeastern edge of the watershed contains water infrastructure and should see a moderate increase in development. The remainder of the watershed is rural with agricultural, timberlands, and residential areas.

Waccamaw River/Atlantic Intracoastal Waterway Basin

The ***Waccamaw River/Atlantic Intracoastal Waterway (AIWW) Basin*** encompasses 11 watersheds and 979 square miles. The Waccamaw River Basin incorporates the Lower Coastal Plain and Coastal Zone regions and the AIWW flows through the Coastal Zone region. Of the some 600,000 acres, 42.5% is forested land, 20.1% is forested wetland (swamp), 13.5% is scrub/shrub land, 9.7% is urban land, 4.9% is nonforested wetland (marsh), 4.8% is water, 4.1% is agricultural land, and 0.4% is barren land. The urban land percentage is comprised chiefly of the Cities of Conway, Georgetown, Myrtle Beach, and North Myrtle Beach. There are approximately 784 stream miles in this watershed, 2,373 acres of lake waters, and 22,910 acres of estuarine areas. The Waccamaw River flows across the South Carolina state line from North Carolina and accepts drainage from Kingston Lake and the AIWW via Socastee Creek. The Waccamaw River then joins the Sampit and Pee Dee Rivers to form Winyah Bay, which drains into the Atlantic Ocean.

Physiographic Regions

The State of South Carolina has been divided into six Major Land Resource Areas (MLRAs) by the USDA Soil Conservation Service. The MLRAs are physiographic regions that have soils, climate, water resources, and land uses in common. The physiographic regions that define the Waccamaw River and AIWW Basin are as follows:

The **Lower Coastal Plain** is an area that is mostly nearly level and is dissected by many broad, shallow valleys with meandering stream channels; elevations range from 25 to 125 feet.

The **Coastal Zone** is a mostly tidally-influenced area that is nearly level and dissected by many broad, shallow valleys with meandering stream channels; most of the valleys terminate in tidal estuaries along the coast; elevations range from sea level to about 25 feet.

Land Use/Land Cover

General land use/land cover data for South Carolina were derived from SCDNR 1990 SPOT multispectral satellite images using image mapping software to inventory the State's land classifications, which are as follows.

Urban land is characterized by man-made structures and artificial surfaces related to industrial, commercial, and residential uses, as well as vegetated portions of urban areas.

Agricultural/Grass land is characterized by cropland, pasture, and orchards and may include some grass cover in Urban, Scrub/Shrub and Forest areas.

Scrub/Shrub land is adapted from the western Rangeland classification to represent the "fallow" condition of the land (currently unused, yet vegetated), and is most commonly found in the dry Sandhills region including areas of farmland, sparse pines, regenerating forest lands, and recently harvested timber lands.

Forest land is characterized by deciduous and evergreen trees not including forests in wetland settings.

Forested Wetland (swampland) is the saturated bottomland, mostly hardwood forests that are primarily composed of wooded swamps occupying river floodplains and isolated low-lying wet areas, primarily located in the Coastal Plain.

Nonforested Wetland (marshland) is dependent on soil moisture to distinguish it from scrub/shrub since both classes contain grasses and low herbaceous cover; nonforested wetlands are most common along the coast and isolated freshwater areas found in the Coastal Plain.

Barren land is characterized by an unvegetated condition of the land, both natural (rock, beaches and unvegetated flats) and man-induced (rock quarries, mines, and areas cleared for construction in urban areas or clearcut forest areas).

Water (non-land) includes both fresh and tidal waters.

Soil Types

The dominant soil associations, or those soil series comprising, together, over 40% of the land area, were recorded for each watershed in percent descending order. The individual soil series for the Waccamaw River and AIWW Basin are described as follows.

Bladen soils are poorly drained soils on low, nearly level areas and low ridges.

Bohicket soils are very poorly drained soils, clayey throughout or mucky and underlain with clayey layers, frequently flooded.

Cape Fear soils are very poorly drained soils that formed in sandy and clayey marine sediments in upland areas of the Coastal Plain, and in flat and depressional areas.

Chipley soils are moderately to excessively well drained soils, sandy throughout, on high ridges.

Eulonia soils are moderately well drained, moderately slowly permeable soils that formed in clayey marine sediment, nearly level to gently sloping and on broad flats.

Hobonny soils are very poorly drained, moderately permeable soils that formed in organic deposits of remains of herbaceous and woody plants, on flood plains of major rivers, covered by water a large part of the time.

Lakeland soils are well drained, sandy soils with loamy subsoil and excessively drained soils.

Leon soils are somewhat poorly drained to poorly drained, level to nearly level, sandy soils with weakly cemented layers stained by organic matter.

Lynnhaven soils are poorly drained sandy soils, with sandy subsoil, in low areas, and prone to ponding.

Mouzon soils are poorly drained, loamy and sandy soils with a loamy subsoil.

Nansemond soils are moderately well drained, rapidly permeable soils that formed in loamy Coastal Plain sediments on stream terraces and adjacent to small drainages.

Newhan soils are excessively drained, very rapidly permeable soils that formed in sandy marine sediment, nearly level to gently sloping, adjacent to beaches and waterways along the coastline.

Ogeechee soils are poorly drained and moderately well drained, loamy soils with clayey or loamy subsoil, on terraces.

Pocomoke soils are very poorly drained, moderately rapidly permeable soils that formed in sandy Coastal Plain sediments in small drainageways, in shallow depressions, and on flats.

Wahee soils are poorly drained soils on low, nearly level areas and low ridges.

Woodington soils are poorly drained, moderately permeable soils that formed in loamy Coastal Plain sediments on stream terraces and upland flats on higher elevations.

Yauhannah soils are poorly drained to moderately well drained soils with a loamy subsoil, on nearly level ridges and in shallow depressions.

Yonges soils are moderately well drained to poorly drained, nearly level soils with a sandy surface layer and a predominantly loamy subsoil.

Slope and Erodibility

The definition of soil erodibility differs from that of soil erosion. Soil erosion may be more influenced by slope, rainstorm characteristics, cover, and land management than by soil properties. Soil erodibility refers to the properties of the soil itself, which cause it to erode more or less easily than others when all other factors are constant.

The soil erodibility factor, K, is the rate of soil loss per erosion index unit as measured on a unit plot, and represents an average value for a given soil reflecting the combined effects of all the soil properties that significantly influence the ease of soil erosion by rainfall and runoff if not protected. The K values closer to 1.0 represent higher soil erodibility and a greater need for best management practices to minimize erosion and contain those sediments which do erode. The range of K-factor values in the Waccamaw River/AIWW Basin is from 0.10 to 0.19.

Fish Consumption Advisory

At the time of publication, a fish consumption advisory issued by SCDHEC is in effect for **the Waccamaw River (from the NC/SC state line to the AIWW) and the Atlantic Intracoastal Waterway** advising people to limit the amount of some types of fish consumed from these waters. Fish consumption advisories are updated annually in March. For background information and the most current advisories please visit the Bureau of Water homepage at http://www.scdhec.net/water and click on "Advisories". For more information or a hard copy of the advisories, call SCDHEC's Division of Health Hazard Evaluation toll-free at (888) 849-7241.

Climate

Normal yearly rainfall in the Waccamaw River/AIWW area is 50.32 inches, according to the S.C. historic climatological record. Data compiled from National Weather Service stations in Loris, Conway, and Georgetown were used to determine the general climate information for this portion of the State. The highest level of rainfall occurs in the summer with 17.48 inches; 11.16, 10.42, and 11.26 inches of rain falling in the fall, winter, and spring, respectively. The average annual daily temperature is 63.4°F. Summer temperatures average 78.8°F and fall, winter, and spring temperatures are 64.9°F, 47.0°F, and 63.0°F, respectively.

Watershed Evaluations

03040206-060

(Juniper Swamp)

General Description

Watershed 03040206-060 (formerly 03040206-066) is located in Horry County and consists primarily of Juniper Swamp and its tributaries within South Carolina. The watershed occupies 11,068 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Woodington- Goldsboro-Norfolk-Autryville series. The erodibility of the soil (K) averages 0.15; the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 40.6% forested land, 30.7% scrub/shrub land, 16.7% forested wetland (swamp), 10.8% agricultural land, 0.9% urban land, 0.2% water, and 0.1% nonforested wetland (marsh).

Tools Fork and Juniper Swamp originate in South Carolina and drain into North Carolina. There are a total of 13.9 stream miles in this watershed and a few ponds (totaling 19.8 acres), all classified FW.

Water Quality

No water quality monitoring occurred in this watershed.

Growth Potential

There is a low potential for growth in this watershed, which contains a portion of the Town of Loris. Loris has both water and sewer infrastructure in the town limits and the in the area surrounding the town. The rest of the watershed is very rural with agricultural uses, timberlands, and some residential areas. A railway line runs through the watershed, but there are no industrial areas.

03040206-090

(Waccamaw River)

General Description

Watershed 03040206-090 (formerly 03040206-091) is located in Horry County and consists primarily of the ***Waccamaw River*** and its tributaries from where it crosses the South Carolina/North Carolina state line to Simpson Creek. The watershed occupies 39,976 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Yauhannah-Ogeechee-Mouzon-Johnston-Meggett series. The erodibility of the soil (K) averages 0.17; the slope of the terrain averages 2%, with a range of 0-3%. Land use/land cover in the watershed includes: 39.6% forested wetland, 38.6% forested land, 13.6% scrub/shrub land, 4.6% agricultural land, 2.8% urban land, and 0.8% water.

This portion of the Waccamaw River accepts drainage from Indigo Branch, Bellamy Branch, Cold Water Branch, and Meetinghouse Branch (Mill Swamp). There are a few ponds (totaling 11.3 acres) and a total of 67.5 stream miles in this watershed. The Waccamaw River is classified FW* (dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5) and the remaining streams in the watershed are classified FW.

Water Quality

Station #	Type	Class	Description
MD-124	P	FW*	WACCAMAW RIVER AT SC 9 7.0 MILES W OF CHERRY GROVE

Waccamaw River (MD-124) - Aquatic life uses are not supported due to occurrences of copper, chromium, and zinc in excess of the aquatic life acute standards, including high concentrations of chromium and zinc measured in 1995, a high concentration of zinc measured in 1996, and a high concentration of chromium measured in 1998. In addition, there was a significant decreasing trend in dissolved oxygen and the detection of chlordane in the water column in 1996. There is also a significant increasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported; however, there is a significant increasing trend in fecal coliform bacteria concentration.

A fish consumption advisory has been issued by the Department for mercury and includes the Waccamaw River within this watershed (see advisory p.187).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
WACCAMAW RIVER	SC0040878
GSW&SA/LONGS WWTP	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.2	WATER QUALITY
PIPE #: 001 FLOW: 1.0 (PROPOSED)	
PIPE #: 001 FLOW: 1.2 (PROPOSED)	
WQL FOR DO,TRC,NH3N,BOD5	

Nonpoint Source Management Program

Mining Activities

MINING COMPANY	***PERMIT #***
MINE NAME	***MINERAL***
FOX BROTHERS, INC.	0790-51
PIT #4	SAND/CLAY

Water Supply

Portions of this watershed fall within the Waccamaw Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.23).

Growth Potential

There is a moderate to high potential for growth in this watershed, which contains the City of North Myrtle Beach and is in close proximity to the City of Myrtle Beach. The highest growth, in the form of residential and commercial development, will occur in the area east of the Waccamaw River, which has water infrastructure. The S.C. Hwy. 90 corridor, which runs east of the river, also has water available.

Moderate growth is seen for the S.C. Hwy. 9 corridor, which crosses the watershed and the Waccamaw River. The S.C. Hwy. 9 corridor has both water and sewerage, and an increase in commercial development in particular is predicted for this corridor. Outside of the municipal areas, the watershed is primarily agricultural, timberland, and residential uses.

03040206-100

(Buck Creek)

General Description

Watershed 03040206-100 is located in Horry County and consists primarily of ***Buck Creek*** and its tributaries. The watershed occupies 22,731 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Yonges-Rains-Yauhannah-Ogeechee series. The erodibility of the soil (K) averages 0.17; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 37.0% forested land, 27.4% forested wetland (swamp), 26.5% scrub/shrub land, 7.6% agricultural land, 0.8% urban land, and 0.7% water.

Buck Creek accepts drainage from Round Swamp, Sheepbridge Branch, Camp Swamp, Little Cedar Branch, Cedar Branch, Big Cedar Branch, and Deep Branch before draining into the Waccamaw River. There are a total of 53.0 stream miles in this watershed, and a few ponds (totaling 48.8 acres), all classified FW.

Water Quality

Station #	Type	Class	Description
PD-362	W	FW	BUCK CREEK AT SC 905

Buck Creek (PD-362) - Aquatic life and recreational uses are fully supported.

Nonpoint Source Management Program

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
SOUTHERN AGGREGATES CO., INC. MYRTLE BEACH QUARRY	0654-51 LIMESTONE
CAP OF M.B., LLC CAP GEORGETOWN MINE	1161-51 LIMESTONE

Water Supply

Portions of this watershed fall within the Waccamaw Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.23).

Growth Potential

There is a low potential for growth in this watershed, which contains the unincorporated community of Longs. Water and sewer infrastructure is located in and around Longs. Some growth is predicted due to the sprawling development around North Myrtle Beach and Myrtle Beach.

03040206-110

(Simpson Creek)

General Description

Watershed 03040206-110 is located in Horry County and consists primarily of ***Simpson Creek*** and its tributaries. The watershed occupies 33,896 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Yauhannah-Ogeechee-Yonges-Mouzon-Nansemond series. The erodibility of the soil (K) averages 0.16; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 41.7% forested land, 25.1% scrub/shrub land, 20.3% forested wetland, 11.9% agricultural land, 0.5% water, 0.4% urban land, and 0.1% barren land.

Simpson Creek accepts drainage from Mill Branch, Bear Branch, West Bear Branch (Neal Branch), another Mill Branch, Cowpen Swamp (Little Cowpen Swamp), Flat Bay, Floyd Bay, Big Swamp, and Todo Swamp (Thoroughfare Bay, Frank Branch). There are a total of 79.5 stream miles and a few ponds totaling 23.9 acres in this watershed, all classified FW.

Water Quality

Station #	Type	Class	Description
PD-363	W	FW	SIMPSON CREEK AT SC 905

Simpson Creek (PD-363) - Aquatic life and recreational uses are fully supported.

Nonpoint Source Management Program

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
LISTON T. HARDEE HARDEE	1055-51 SAND/CLAY
WHITE & SONS, INC. HEWETT ROAD MINE	1132-51 SAND/CLAY

Water Supply

Portions of this watershed fall within the Waccamaw Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.23).

Growth Potential

There is a low potential for growth in this watershed.

03040206-120

(Waccamaw River)

Watershed 03040206-120 (formerly 03040206-130) is located in Horry County and consists primarily of the ***Waccamaw River*** and its tributaries from Simpson Creek to Kingston Lake. The watershed occupies 56,449 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Leon-Lynn Haven-Yauhannah-Ogeechee series. The erodibility of the soil (K) averages 0.14; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 46.3% forested land, 38.5% forested wetland (swamp), 9.0% scrub/shrub land, 2.7% urban land, 2.7% agricultural land, 0.6% water, and 0.1% nonforested wetland (marsh).

This portion of the Waccamaw River accepts drainage from its upstream reaches along with Jones Big Swamp (Boggy Swamp, Horse Savannah, Watts Bay), Stanley Creek (Beaverdam Swamp, Big Swamp), Tilly Swamp (Tiger Bay, Cane Bay, Buck Bay, Long Branch), and Round Swamp. Dam Swamp enters the river next followed by Skeritt Swamp (East Prong, South Prong). There are a total of 85.4 stream miles in this watershed. The Waccamaw River is classified FW* (dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5) and the remaining streams are classified FW.

Water Quality

No water quality monitoring occurred in this watershed.

A fish consumption advisory has been issued by the Department for mercury and includes the Waccamaw River within this watershed *(see advisory p.187).*

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
WACCAMAW RIVER TRIBUTARY	SC0042889
ROYAL OAK CHARCOAL, LLC	MINOR INDUSTRIAL
PIPE #: 001 FLOW: 0.00376	EFFLUENT

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME	***PERMIT #***
FACILITY TYPE	***STATUS***
HORRY COUNTY LANDFILL	261001-1101 (DWP-089, DWP-114, DWP-064)
MUNICIPAL	CLOSED

HORRY COUNTY LANDFILL SUBTITLE D	261001-1102
-------	ACTIVE

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
FOX BROTHERS, INC. RED HILL #1	0783-51 SAND/CLAY
FOX BROTHERS, INC. RED HILL #2	0980-51 SAND
MATERIAL HANDLERS PIT #3	1030-51 SAND
RON TEAGUE LEES LANDING CIRCLE MINE	1056-51 SAND/CLAY

Water Supply

Portions of this watershed fall within the Waccamaw Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.23).

Growth Potential

There is a moderate to high potential for growth in this watershed, which contains a portion of the City of Conway and is in close proximity to the Cities of Myrtle Beach and North Myrtle Beach. The highest growth, in the form of residential and commercial development, will occur in the area east of the Waccamaw River, which has water infrastructure. The S.C. Hwy. 90 corridor, which runs east of the river, also has water available. The U.S. Hwy. 501 corridor, from the City of Conway to Myrtle Beach, has sewerage infrastructure and should see residential, commercial, and industrial growth. The Buist Tract, the largest undeveloped tract of land in Horry County, is expected to be developed in the future with 10,000 new residences and 11 new golf courses.

03040206-130

(Kingston Lake)

Watershed 03040206-130 (formerly 03040206-120) is located in Horry County and consists primarily of ***Kingston Lake*** and its tributaries. The watershed occupies 83,446 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Yonges-Nansemond-Bladen-Wahee-Pocomoke series. The erodibility of the soil (K) averages 0.19; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 29.9% forested land, 26.8% forested wetland (swamp), 26.1% scrub/shrub land, 13.5% agricultural land, 3.4% urban land, 0.1% nonforested wetland (marsh), 0.1% water, and 0.1% barren land.

Kingston Lake accepts drainage from Jacks Bay, Alligator Swamp, and White Oak Swamp. White Oak Swamp receives drainage from Little White Oak Swamp (Cane Branch), Horsepen Branch, Huckleberry Branch, Bug Swamp (Bay Gully Branch, Bayboro Branch, Hellhole Swamp), and Fox Branch. Camp Swamp enters the system next followed by Horsepen Creek, Maple Swamp (Big Baxter Swamp, Little Baxter Swamp, Horse Creek, Cross Branch, Poplar Swamp, Booth Branch, Smith Branch, Boggy Swamp), Grier Swamp (Priver Branch, Mill Branch, Long Swamp, St. Paul Branch, Brown Swamp, Mary Branch), and Crab Tree Swamp (Ned Creek, Thompson Swamp, Oakey Swamp, Beaver Hole Swamp, Altman Branch). The Kingston Lake Watershed drains into the Waccamaw River. There are several ponds (totaling 161.8 acres) in this watershed and a total of 165.6 stream miles, all classified FW.

Water Quality

Station #	Type	Class	Description
MD-158	S	FW	CRAB TREE SWP AT LONG ST BELOW CONWAY #1 POND OUTFALL
MD-107	S	FW	KINGSTON LAKE NEAR PUMP STA ON LAKESIDE DRIVE, CONWAY

Crab Tree Swamp (MD-158) - Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and considered natural, not standards violations. A significant increasing trend in dissolved oxygen and a significant decreasing trend in five-day biochemical oxygen demand suggest improving conditions for these parameters. A high concentration of zinc and lead were detected in the 1996 sediment sample. Chlordane was detected in the 1994 sediment sample. Recreational uses are not supported due to fecal coliform bacteria excursions.

Kingston Lake Swamp (MD-107) - Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and considered natural, not standards violations. There is a significant increasing trend in pH. Recreational uses are not supported due to fecal coliform bacteria excursions.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
MAPLE SWAMP	SC0022454
UNIBLEND SPINNERS/CONWAY PLT	MINOR INDUSTRIAL
PIPE #: 002 FLOW: 0.065	EFFLUENT
PIPE #: 001 FLOW: 0.020	WATER QUALITY
WQL FOR DO,TRC,NH3N,BOD5	

Nonpoint Source Management Program

Mining Activities

MINING COMPANY	***PERMIT #***
MINE NAME	***MINERAL***
THOMPKINS & ASSOCIATES, INC.	0638-51
WEST MINE	LIMESTONE

Water Supply

Portions of this watershed fall within the Waccamaw Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.23).

Growth Potential

There is a moderate potential for residential and commercial growth in this watershed, which contains a portion of the City of Conway. Water and sewerage infrastructure is located in and around Conway, and water is available along the U.S. Hwy. 701 corridor. An industrial area is located along U.S. Hwy. 701 and should see growth due to an existing rail line and highways that make the area accessible from all directions.

Watershed Protection and Restoration

Special Projects

Identification and Mitigation of Nonpoint Source in Kingston Lake and Crab Tree Swamp

A number of organizations, led by Coastal Carolina University, will conduct a comprehensive project in Kingston Lake and Crab Tree Swamp. The milestones of the project include collecting urban runoff baseline data, constructing a demonstration stormwater retention pond located in a residential development to evaluate its efficacy, and producing educational materials about urban nonpoint source to inform the people living in the watershed.

03040206-140

(Waccamaw River)

General Description

Watershed 03040206-140 is located in Horry County and consists primarily of the ***Waccamaw River*** and its tributaries from Kingston Lake to its confluence with Socastee Creek (AIWW). The watershed occupies 79,628 acres of the Lower Coastal Plain and Coastal Zone regions of South Carolina. The predominant soil types consist of an association of the Hobonny-Yauhannah-Ogeechee-Mouzon-Leon series. The erodibility of the soil (K) averages 0.14; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 41.6% forested land, 28.5% forested wetland (swamp), 14.2% urban land, 9.7% scrub/shrub land, 2.4% water, 2.0% agricultural land, 1.4% nonforested wetland (marsh), and 0.2% barren land.

This section of the Waccamaw River flows past the City of Conway and accepts drainage from its upper reach, together with Bear Swamp (Butler Swamp, Willow Springs Branch, Busbee Lake, Wadus Lake), Pitch Lodge Lake, Cox Ferry Lake, and Thorofare Creek. Gravely Gully and Halfway Swamp (Big Branch) enter the river next, followed by Old Womans Lake, Big Buckskin Creek, and Peachtree Lake. Socastee Swamp and the AIWW (Folly Swamp) merge near the Town of Socastee to form Socastee Creek, which flows into the Waccamaw River at the base of the watershed. Enterprise Creek connects the Waccamaw River and Socastee Creek just upstream of their confluence. There are several lakes and ponds (totaling 477.0 acres) in this watershed, and a total of 129.1 stream miles. This portion of the Waccamaw River is classified FW* (dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5) and the remaining streams in the watershed are classified FW.

Water Quality

Station #	Type	Class	Description
MD-088	S	FW	AIWW 1 MILE SOUTH OF BRIDGE ON US 501
MD-089	S	FW	AIWW 2 MILES SOUTH OF BRIDGE ON US 501
MD-127	P	FW	AIWW AT SC 544 7.5 MILES SW OF MYRTLE BEACH
MD-110	S	FW*	WACCAMAW RIVER AT US 501 BY-PASS AROUND CONWAY
MD-111	S	FW*	WACCAMAW RIVER AT COX'S FERRY ON COUNTY ROAD 110
MD-136	S	FW*	WACCAMAW R. 0.25 MILES UPSTREAM OF JUNCTION WITH AIWW

Atlantic Intracoastal Waterway (AIWW) - There are three monitoring sites along this section of the AIWW. A Total Maximum Daily load (TMDL) has been approved for this area. This will result in decreased loadings of oxygen demanding substances to the system (see p. 201, Watershed Protection and Restoration Strategies, for more information on the TMDL). This is a tidally influenced system, which are often characterized by naturally low pH. Although pH excursions occurred at all sites, they were typical of values seen in tidally influenced systems with significant marsh and swamp drainage and were considered natural, not standards violations. Aquatic life uses are not supported at ***MD-088*** due to dissolved oxygen excursions. A significant decreasing trend in turbidity suggests improving conditions for this parameter. Recreational uses are not supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Aquatic life uses are also not supported at ***MD-089*** due to dissolved oxygen excursions, compounded by a significant decreasing trend in dissolved oxygen. Recreational uses are partially supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Aquatic life uses are not supported at ***MD-127*** due to dissolved oxygen excursions. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. In sediments, very high concentrations of zinc, copper, and chromium were detected in the 1996 sample, and P,P'DDE (a metabolite of DDT) was detected in the 1995 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are fully supported.

Waccamaw River - There are three monitoring sites along this section of the Waccamaw River. At the furthest upstream site ***(MD-110)***, aquatic life uses are fully supported. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported.

Further downstream ***(MD-111)***, aquatic life uses are fully supported; however there is a significant increasing trend in turbidity. There is a significant increasing trend in pH. A significant increasing trend in dissolved oxygen and a significant decreasing trend in five-day biochemical oxygen demand suggest improving conditions for these parameters. Recreational uses are partially supported due to fecal coliform bacteria excursions.

At the furthest downstream site ***(MD-136)***, aquatic life uses are not supported due to dissolved oxygen excursions, compounded by a significant decreasing trend in dissolved oxygen. A Total Maximum Daily load (TMDL) has been approved for this area. This will result in decreased loadings of oxygen demanding substances to the system (see p. 201, Watershed Protection and Restoration Strategies, for more information on the TMDL). Recreational uses are fully supported.

This portion of the Waccamaw River has been treated with aquatic herbicides from 1997-1999 to reduce the amount of water hyacinth to the greatest extent possible.

A fish consumption advisory has been issued by the Department for mercury and includes the Waccamaw River and the AIWW within this watershed (see advisory p.187).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
WACCAMAW RIVER S.C. PUBLIC SERV. AUTH./GRAINGER PIPE #: 001 FLOW: 2.18 PIPE #: 002 FLOW: 122.96 WQL FOR TRC	SC0001104 MAJOR INDUSTRIAL WATER QUALITY WATER QUALITY
WACCAMAW RIVER GSW&SA/SCHWARTZ SLUDGE APPL. SITE PIPE #: 001 FLOW: M/R	SC0037753 MAJOR DOMESTIC WATER QUALITY
WACCAMAW RIVER WETLAND GSW&SA/CENTRAL WETLANDS PLT PIPE #: 001 FLOW: 1.2 WETLAND; WQL FOR TRC, NH3N	SC0039900 MAJOR DOMESTIC WATER QUALITY
WACCAMAW RIVER TRIBUTARY TO RIVER GSW&SA/CENTRAL RIVER PLT PIPE #: 001 FLOW: 1.2 WQL FOR TRC	SC0040410 MAJOR DOMESTIC WATER QUALITY
ATLANTIC INTRACOASTAL WATERWAY TRIBUTARY USAF/MYRTLE BEACH AIR FORCE BASE PIPE #: 001 FLOW: 0.144 PIPE #: 002 FLOW: M/R	SC0002097 MINOR INDUSTRIAL EFFLUENT
SOCASTEE CREEK TRIBUTARY FLORENCE BARNHILL MINE PIPE #: 001 FLOW: M/R	SCG730016 MINOR INDUSTRIAL EFFLUENT
SOCASTEE SWAMP AVX CORPORATION/CONWAY PLT PIPE #: 001 FLOW: 0.023	SCG250173 MINOR INDUSTRIAL EFFLUENT
SOCASTEE SWAMP ALLIED-SIGNAL, INC./CONWAY PIPE #: 001 FLOW: M/R	SCG250069 MINOR INDUSTRIAL EFFLUENT
WADUS LAKE GSW&SA/CONWAY WWTP PIPE #: 001 FLOW: 3.2 WQL FOR DO,TRC,NH3N,BOD5	SC0021733 MAJOR DOMESTIC WATER QUALITY

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME	***PERMIT #***
FACILITY TYPE	***STATUS***
CITY OF CONWAY DUMP	-----------
--------	CLOSED
THOMPKINS C&D DUMP	-----------
CONSTRUCTION	-----------

Mining Activities

MINING COMPANY	***PERMIT #***
MINE NAME	***MINERAL***
ERC, INC.	1032-51
SANDRIDGE MINE	SAND/CLAY
GROUND IMPROVEMENT TECHNIQUES	1056-51
LEES LANDING CIRCLE MINE	SAND/CLAY
FOX BROTHERS, INC.	0784-51
PIT #2	SAND/CLAY
FOX BROTHERS, INC.	0636-51
DEFENDER MINING, MINE #1	SAND
EDGE REALTY COMPANY	0782-51
J&B SAND & FILL	SAND
ROBERT O. COLLINS CO., INC.	1083-51
SOCASTEE PIT	SAND
C. OWENS & SON, INC.	0951-51
OWENS PIT	SAND/CLAY
FLORENCE D. BARNHILL	1015-51
FLORENCE BARNHILL MINE	SAND/CLAY
WACCAMAW CLAY PRODUCTS CO.	0065-51
WACCAMAW CLAY PIT	CLAY
DONALD RICHARDSON & SON, INC.	1099-51
RICKYS DIRT PIT	SAND/CLAY
CL BENTON & SONS, INC.	1107-51
SEA MIST	SAND

Water Supply

Portions of this watershed fall within the Waccamaw Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.23).

Growth Potential

There is a high potential for residential, commercial, and industrial growth in this watershed, which contains a portion of the City of Conway and the outskirts of the City of Myrtle Beach. A high increase of growth is expected east of the Waccamaw River in particular, and a moderate increase west of the river. All but the northern most corner of the watershed contain water infrastructure. Sewer infrastructure is located in much of the watershed, including the S.C. Hwy. 544 corridor, east of S.C. Hwy. 544 (excluding the area north of U.S. Hwy. 501), and in the Bucksport community. Commercial and residential development is the predominate land use in the City of Conway and along sections of U.S. Hwy. 501, U.S. Hwy. 17 Bypass, and S.C. Hwy. 544. Two industrial parks are located along the U.S. Hwy. 501 corridor as well as an existing rail line. A section of the former Myrtle Beach Air Force Base is located in the watershed and is being developed for industrial and commercial use. Most of the land use outside of these areas consist of residential development and timberland. Several major highway improvement projects are planned for this area in the future including the widening of U.S. Hwy. 501, S.C. Hwy. 544, and U.S. Hwy. 17.

Watershed Protection and Restoration

Total Maximum Daily Loads (TMDLs)

A total maximum daily load (TMDL) for oxygen demanding substances has been developed for the main stem of the Waccamaw River and the Atlantic Intracoastal Waterway (AIWW) in watersheds 02040206-140, 03040206-150, and 03040207-020. The TMDL addresses 12 separate monitoring stations on the State's 1998 303(d) list of impaired waters. The TMDL, based on a maximum 0.1 mg/l deficit allowed in waters that do not meet applicable dissolved oxygen standards due to natural conditions, will result in a decrease of approximately 63% in the permitted oxygen demanding load discharged to the system. The decreased loadings are being implemented through the NPDES permitting system with new, more restrictive limits becoming final at the conclusion of appropriate compliance schedules.

Special Projects

Establishment of National Wildlife Refuge in Coastal South Carolina

In 1997, the U.S. Fish and Wildlife Service established the **Waccamaw National Wildlife Refuge**. The refuge extends over portions of the Pee Dee River and the Waccamaw River incorporating this watershed along with portions of watersheds 03040206-140 and 03040206-150. The purpose of the refuge is to protect and manage an important coastal river ecosystem, which includes a significant number of rare and endangered species, and large contiguous blocks of riverine wetlands and bottomland hardwood forests that provide habitat for wetland-dependent wildlife. The refuge also provides compatible wildlife-dependent recreational activities, such as hunting, fishing, wildlife observation, and environmental education. The refuge was established due to the cooperative efforts of the Winyah Bay Focus Area Task Force, a regional coalition of federal and state agencies, industry, conservation organizations, and citizens.

Development & Implementation of a S.C. Coast-A-Syst

This project targets homeowners living along the Atlantic Intracoastal Waterway (AIWW) and Socastee Creek (watershed 03040206-140) and the AIWW and Little River (watershed 03040207-020). Like much of the coast, these areas are experiencing rapid development and increased populations, while also harboring fragile water resources for recreation and marine ecology. High fecal coliform bacteria counts, water quality non-supportive of aquatic life because of low dissolved oxygen, and pH excursions exist in local waterbodies.

To address these problems, the S.C. Sea Grant Consortium and Clemson University received Section 319 funds to develop and evaluate a program called South Carolina Coast-A-Syst. This product, modeled after the Home*A*Syst and Farm-A-Syst programs, will be used to teach watershed residents and waterbody users responsible practices for protecting water quality, with the ultimate goal to reduce bacteria and nutrient input into nearby waterbodies from urban/suburban activities and land development. Research will be conducted through surveys to determine what BMPs are appropriate for coastal South Carolina, where education about nonpoint source is lacking, and how best to reach homeowners in providing continued education. Education of coastal residents will include identification of practices which detrimentally affect water quality, reasons why those practices do so, and instructions in better water quality management practices.

Sea Grant Extension and Clemson Extension are publishing a S.C. Coast-A-Syst packet, which will include self-assessments and fact sheets on homeowner practices. Sea Grant Extension will also train Extension agents, Master Gardeners, and homeowner associations to administer this homestead self-assessment program, distribute the program and materials through homeowner associations and other public groups, provide support for the program through the Horry County Extension Service, and provide electronic distribution of the program via the world wide web.

03040206-150

(Waccamaw River)

General Description

Watershed 03040206-150 is located in Georgetown and Horry Counties and consists primarily of the ***Waccamaw River*** and its tributaries from Socastee Creek (AIWW) to Winyah Bay. The watershed occupies 53,922 acres of the Coastal Zone region of South Carolina. The predominant soil types consist of an association of the Leon-Bohicket-Lynn Haven-Hobonny-Chipley series. The erodibility of the soil (K) averages 0.10; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 32.9% forested land, 22.9% forested wetland, 12.7% urban land, 12.5% scrub/shrub land, 9.3% water, 8.6% nonforested wetland, 0.7% agricultural land, and 0.4% barren land.

This section of the Waccamaw River accepts drainage from its upper reaches, together with Oatbed Creek, Seven Prongs, Peach Creek, Old River (Nimrod Creek), Clark Creek, Big Swamp, Old Dock Creek (Righthand Creek), and Silvers Creek. Bull Creek enters the river next followed by Prince Creek, Vaux Creek, Silver Creek, Collins Creek, Cow House Creek, and Black Creek (White Creek). Sandhole Creek (Ruinsville Creek, Crane Creek) enters the river next followed by Springfield Creek, Brookgreen Creek, Pawleys Creek, Oatland Creek, Waverly Creek, Butler Creek, Schooner Creek, Caledonia Creek (Duncan Creek) and Jericho Creek. There are a total of 55.7 stream miles, 575.5 acres of lake waters, and 3,008.5 acres of estuarine areas in this watershed. The Waccamaw River is classified FW* (dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5) from the top of the watershed to the river's confluence with Thoroughfare Creek. The tributaries along this portion of the river are classified FW. Downstream of the confluence, the river is classified SA* (dissolved oxygen not less than 4.0 mg/l) and its tributaries are classified SA.

Water Quality

Station #	Type	Class	Description
MD-146	P	FW*	WACCAMAW R. & AIWW 1 MI BELOW JCT, BUCKSPORT LANDING
MD-137	S	FW*	WACCAMAW R. NEAR MOUTH OF BULL CK AT CHANNEL MKER 50
MD-138	P	FW*	WACCAMAW RIVER AT CHANNEL MARKER 57
(MD-080)	P	SB	WINYAH BAY @ MARKER 92 AT MOUTH OF PEE DEE AND WACCAMAW RIVERS

Waccamaw River & Atlantic Intracoastal Waterway (MD-146) - Aquatic life uses are not supported due to occurrences of zinc in excess of the aquatic life acute standards and dissolved oxygen excursions. In addition, there was a high concentration of zinc measured in 1995, a very high concentration of both zinc and copper measured in 1997, and a significant decreasing trend in dissolved oxygen. There is a significant increasing trend in pH. A Total Maximum Daily load (TMDL) has been approved for this area. This will result in decreased loadings of oxygen demanding substances to the system (see p. 206, Watershed Protection and Restoration Strategies, for more information on the TMDL). Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are fully supported.

Waccamaw River - There are three monitoring sites along this section of the Waccamaw River and recreational uses are fully supported at all sites. At the upstream site ***(MD-137)***, aquatic life uses are fully supported; however, there is a significant decreasing trend in dissolved oxygen. A significant decreasing trend in turbidity suggests improving conditions for these parameters. At the downstream site ***(MD-138)***, aquatic life uses are also fully supported; however, there is a significant decreasing trend in dissolved oxygen. In addition, a very high concentration of zinc was measured in 1996, and a high concentration of lead was measured in 1997. ***MD-080*** is physically located in 03040201-170, but also reflects a mixing area of waters including Winyah Bay (03040207-040) and this section of the Waccamaw River. Aquatic life uses are fully supported at ***MD-080***; however, there is a significant decreasing trend in dissolved oxygen. Significant decreasing trends in five-day biochemical oxygen demand and total suspended solids suggest improving conditions for these parameters. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
WACCAMAW RIVER GSW&SA/SCHWARTZ PLANT PIPE #: 001 FLOW:13.51 WQL FOR DO,NH3N,BOD5	SC0037753 MAJOR DOMESTIC WATER QUALITY
WACCAMAW RIVER CITY OF MYRTLE BEACH/WTR RECLAMATION PIPE #: 001 FLOW: 17.0 WQL FOR DO,NH3N	SC0039039 MAJOR DOMESTIC WATER QUALITY
WACCAMAW RIVER GCW&SD/MURRELLS INLET WWTP PIPE #: 001 FLOW: 2.0 WQL FOR NH3N,BOD5	SC0040959 MAJOR DOMESTIC WATER QUALITY
WACCAMAW RIVER GEORGETOWN COUNTY PIPE #: 001 FLOW: 9.0-12.0 WQL FOR DO	PROPOSED MAJOR DOMESTIC WATER QUALITY
WACCAMAW RIVER HAGLEY LAKE CO., INC. PIPE #: 001 FLOW: M/R	SCG730044 MINOR INDUSTRIAL EFFLUENT
WACCAMAW RIVER GSW&SA/BULL CREEK WTP PIPE #: 001 FLOW: 1.1	SC0043699 MINOR DOMESTIC WATER QUALITY

WQL FOR TRC

WACCAMAW RIVER GSW&SA/BUCKSPORT WWTP PIPE #: 001 FLOW: 0.2	SC0040886 MINOR DOMESTIC EFFLUENT
WACCAMAW RIVER GCW&SD/PAWLEYS AREA WWTP PIPE #: 001 FLOW: 2.75 WQL FOR NH3N,BOD5	SC0039951 MAJOR DOMESTIC WATER QUALITY
CLARK CREEK INTEGRAL FARM MINE PIPE #: 001 FLOW: M/R	SCG730023 MINOR INDUSTRIAL EFFLUENT
BROOKGREEN CREEK GCW&SD/WACCAMAW REGIONAL WTP PIPE #: 001 FLOW: 0.35 WQL FOR TRC	SCG643001 MINOR DOMESTIC WATER QUALITY

Nonpoint Source Management Program

Land Application Sites

LAND APPLICATION SYSTEM ***FACILITY NAME***	***ND#*** ***TYPE***
SPRAYFIELD GSW&SA BULL CREEK WTP	ND0069892 DOMESTIC

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
INTEGRAL FARM & GARDEN SERVICE INTEGRAL FARM	1051-51 SAND/CLAY
R.L. CAUSEY LANDSCAPING VEREEN PIT	1053-51 SAND/CLAY
HAGLEY LAKE CO, INC. HAGLEY MINE	0728-43 SAND

Water Supply

Portions of this watershed fall within the Waccamaw Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.23).

WATER USER (TYPE) ***STREAM***	***REGULATED CAPACITY (MGD)*** ***PUMPING CAPACITY (MGD)***
GEORGETOWN COUNTY WSD (M) GEORGETOWN CANAL	4.60 6.90

Growth Potential

There is a high potential for residential and commercial growth in this watershed, which contains portions of the Towns of Bucksport, Surfside Beach, and Murrells Inlet. The area is developed with many residential and resort communities. The area west of the AIWW is accessible only by boat and is not expecting significant growth. Water infrastructure is located throughout most of the watershed, and sewer is currently located in the northern tip as well as in many of the newer developments throughout the region. All areas on the Waccamaw Neck will have sewer services in the near future. Along with resort and residential developments, commercial uses and two large tracts of semi-public land are located along the U.S. Hwy. 17 corridor.

Watershed Protection and Restoration

Total Maximum Daily Loads (TMDLs)

A total maximum daily load (TMDL) for oxygen demanding substances has been developed for the main stem of the Waccamaw River and the Atlantic Intracoastal Waterway (AIWW) in watersheds 02040206-140, 03040206-150, and 03040207-020. The TMDL addresses 12 separate monitoring stations on the State's 1998 303(d) list of impaired waters. The TMDL, based on a maximum 0.1 mg/l deficit allowed in waters that do not meet applicable dissolved oxygen standards due to natural conditions, will result in a decrease of approximately 63% in the permitted oxygen demanding load discharged to the system. The decreased loadings are being implemented through the NPDES permitting system with new, more restrictive limits becoming final at the conclusion of appropriate compliance schedules.

Special Projects

Establishment of National Wildlife Refuge in Coastal South Carolina

In 1997, the U.S. Fish and Wildlife Service established the **Waccamaw National Wildlife Refuge**. The refuge extends over portions of the Pee Dee River and the Waccamaw River incorporating this watershed along with portions of watersheds 03040206-140 and 03040206-150. The purpose of the refuge is to protect and manage an important coastal river ecosystem, which includes a significant number of rare and endangered species, and large contiguous blocks of riverine wetlands and bottomland hardwood forests that provide habitat for wetland-dependent wildlife. The refuge also provides compatible wildlife-dependent recreational activities, such as hunting, fishing, wildlife observation, and environmental education. The refuge was established due to the cooperative efforts of the Winyah Bay Focus Area Task Force, a regional coalition of federal and state agencies, industry, conservation organizations, and citizens.

03040207-020

(Atlantic Intracoastal Waterway)

General Description

The South Carolina portion of watershed 03040207-020 (formerly 03040207-030) is located in Horry and Georgetown Counties and consists primarily of the ***Atlantic Intracoastal Waterway*** (AIWW) and its tributaries from Myrtle Beach northward to the North Carolina state line, and also includes streams draining into the Atlantic Ocean from the "Grand Strand" beaches southward to Litchfield Beach. The watershed occupies 71,183 acres of the Coastal Zone region of South Carolina. The predominant soil types consist of an association of the Lakeland-Newhan-Bohicket series. The erodibility of the soil (K) averages 0.16; the slope of the terrain averages 3%, with a range of 0-6%. Land use/land cover in the watershed includes: 40.4% urban land, 30.6% forested land, 10.6% forested wetland (swamp), 5.7% water, 5.4% nonforested wetland (marsh), 5.3% scrub/shrub land, 1.1% barren land, and 0.9% agricultural land.

The Little River is a tidal river and flows in both directions, from Little River Inlet to the AIWW, according to the tides. The Little River flows across the North Carolina state line and accepts drainage from Mullet Creek, Calabash Creek, Milliken Cove, and Horseford Creek. Dunn Sound Creek connects Little River Inlet to Dunn Sound, as does Sheephead Creek. Eden Saltworks Creek connects Dunn Sound to Hog Inlet, and House Creek connects Hog Inlet to Cherry Grove Inlet. Also draining into Cherry Grove Inlet are Williams Creek, Salt Flat Creek, and Nixon Creek.

The portion of the AIWW in this watershed accepts drainage from Little River Swamp, Prices Swamp, Camp Branch Run, White Point Creek (Long Pond), Long Branch, Canepatch Swamp, and Black Creek before flowing through Little River. Withers Swamp drains off of the AIWW in Myrtle Beach. Singleton Swash, Bear Creek, Canepatch Swash, Withers Swash, and Pebble Beach or Midway Swash drain directly into the Atlantic Ocean. Whale Creek, Main Creek, Woodland Creek, Parsonage Creek, Flagg Creek, Allston Creek, Oaks Creek, and Oyster Cove all drain to the ocean through Murrells Inlet. There are a total of 5.6 stream miles, 148.8 acres of lake waters, and 2,304.5 acres of estuarine areas in this watershed. All streams in the watershed are classified SFH with the exception of the AIWW. The AIWW and its tributaries from the crossing of S.C. Hwy 9 to the North Carolina state line are classified SA, and southward from the S.C. Hwy 9 crossing to the Waccamaw River are classified FW.

Water Quality

Station #	Type	Class	Description
MD-162	P	SA	LITTLE RIVER AT S END OF ISLAND DUE E OF TOWN
MD-125	S	FW/SA	AIWW (LITTLE RIVER) ON SC 9 (US 17)
MD-091	S	FW	AIWW 4 MILES N OF BRIDGE ON US 501
MD-085	S	FW	AIWW AT POINT 3 MILES NORTH OF BRIDGE ON US 501
MD-087	P	FW	AIWW JUST NORTH OF BRIDGE ON US 501

Little River (MD-162) - Aquatic life uses are not supported due to occurrences of copper in excess of the aquatic life acute standards, compounded by a high concentration of zinc measured in 1994. There is a significant increasing trend in pH. This is a tidally influenced system, characterized by naturally low pH. Although pH excursions occurred, they were typical of values seen in tidally influenced systems with significant marsh and swamp drainage and were considered natural, not standards violations. A significant decreasing trend in total nitrogen concentration suggests improving conditions for this parameter. The pesticide guthion was detected in the 1994 sediment sample. Recreational uses are fully supported, and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Atlantic Intracoastal Waterway (AIWW) - There are four monitoring sites along this section of the AIWW. A Total Maximum Daily load (TMDL) has been approved for this area. This will result in decreased loadings of oxygen demanding substances to the system (see p. 211, Watershed Protection and Restoration Strategies, for more information on the TMDL).

Aquatic life uses are partially supported at ***MD-125*** due to dissolved oxygen excursions. This area is transitional between freshwater and saltwater and shows characteristics of both. A significant increasing trend in dissolved oxygen suggests improving conditions for this parameter. Recreational uses are fully supported.

At ***MD-091***, aquatic life uses are not supported due to dissolved oxygen excursions, compounded by a significant decreasing trend in dissolved oxygen. Recreational uses are not supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Further downstream ***(MD-085)***, aquatic life uses are not supported due to dissolved oxygen excursions. This is a tidally influenced system, which are often characterized by naturally low pH conditions. Although pH excursions occurred, they were typical of values seen in systems with significant marsh and swamp drainage and were considered natural, not standards violations. Recreational uses are not supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

At the furthest downstream site ***(MD-087)***, aquatic life uses are not supported due to dissolved oxygen excursions and occurrences of copper in excess of the aquatic life acute standards. Recreational uses are not supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Huntington Beach State Park Pond - The pond was treated with aquatic herbicides from 1997-1999 to remove cattails and improve water quality.

A fish consumption advisory has been issued by the Department for mercury and includes the AIWW within this watershed (see advisory p.187).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)* *COMMENT*	*NPDES#* *TYPE* *LIMITATION*
CAROLINA BAYS GSW&SA/VEREEN WWTP PIPES #: 001 FLOW: 2.5	SC0041696 MAJOR DOMESTIC EFFLUENT
AIWW GSW&SA/VEREEN WWTP PIPES #: 002-005 FLOW: M/R WQL FOR NH3N,BOD5	SC0041696 MAJOR DOMESTIC WATER QUALITY
ATLANTIC INTRACOASTAL WATERWAY CITY OF N. MYRTLE BEACH/OCEAN DRIVE PIPE #: 001 FLOW: 3.4 WQL FOR DO,NH3N,BOD5	SC0022152 MAJOR DOMESTIC WATER QUALITY
ATLANTIC INTRACOASTAL WATERWAY CITY OF N. MYRTLE BEACH/CRESCENT BEACH PIPE #: 001 FLOW: 2.1 WQL FOR DO,NH3N,BOD5	SC0022161 MAJOR DOMESTIC WATER QUALITY
ATLANTIC INTRACOASTAL WATERWAY CITY OF MYRTLE BEACH WTP PIPE #: 001 FLOW: M/R	SCG641012 MINOR DOMESTIC EFFLUENT
ATLANTIC OCEAN USAF/MYRTLE BEACH AFB PIPE #: 003-005 FLOW: M/R	SC0002097 MINOR INDUSTRIAL EFFLUENT

Nonpoint Source Management Program

Camp Facilities

FACILITY NAME/TYPE *RECEIVING STREAM*	*PERMIT #* *STATUS*
BAREFOOT LANDING CAMPGROUND/FAMILY ATLANTIC OCEAN	26-1017 ACTIVE
MYRTLE BEACH TRAVEL PARK/FAMILY ATLANTIC OCEAN	26-1021 ACTIVE
APPACHE CAMPGROUND/FAMILY ATLANTIC OCEAN	26-1001 ACTIVE
MYRTLE BEACH KOA CAMPGROUND/FAMILY ATLANTIC OCEAN	26-0342 ACTIVE
SPRING MAID BEACH/FAMILY ATLANTIC OCEAN	26-1018 ACTIVE
MYRTLE BEACH STATE PARK/FAMILY ATLANTIC OCEAN	26-1012 ACTIVE

PIRATELAND CAMPGROUND/FAMILY ATLANTIC OCEAN	26-1014 ACTIVE
LAKEWOOD CAMPGROUND/FAMILY ATLANTIC OCEAN	26-1009 ACTIVE
OCEAN LAKES CAMPGROUND/FAMILY ATLANTIC OCEAN	26-1013 ACTIVE
HUNTINGTON STATE PARK ATLANTIC OCEAN	22-0002 ACTIVE

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
CITY OF MYRTLE BEACH DUMP --------	----------- CLOSED
CITY OF MYRTLE BEACH TRANSFER STA. --------	261003-6001 ----------
CITY OF N. MYRTLE BEACH TRANSFER STA. --------	261004-6001 -----------
VENTURE MANUFACTURING INDUSTRIAL	342433-5201 -----------

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
P MINING CO. P MINING PIT	0776-51 LIMESTONE
STEVENS CONSTRUCTION COMPANY STEVENS PIT	0922-51 SAND
A.O. HARDEE & SONS, INC. SAND RIDGE	0928-51 SAND
WATERWAY ASSOC. C/O JGT, INC. WATERWAY BASIN #1	0822-51 SAND
WATERWAY ASSOC. C/O JGT, INC. WATERWAY BASIN #2	0815-51 SAND
C.L. BENTON & SONS, INC. 79TH AVE. NORTH BORROW PIT	0362-51 SAND/CLAY

Water Supply

Portions of this watershed fall within the Waccamaw Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.23).

WATER USER (TYPE) ***STREAM***	***REGULATED CAPACITY (MGD)*** ***PUMPING CAPACITY (MGD)***
CITY OF MYRTLE BEACH (M) AIWW	30.0 40.O

Growth Potential

There is a high potential for residential/resort and commercial growth in this watershed, which contains the Cities of North Myrtle and Myrtle Beach as well as the Towns of Atlantic Beach, and Surfside Beach. This "Grand Strand" area is expected to experience a significant increase in population as the popular tourist destination lures year-round residents. Water infrastructure is located throughout the watershed, and sewerage is available in the northern tip as well as in many of the residential/resort developments on the Waccamaw Neck. All developed areas on the Waccamaw Neck will have sewer services in the near future. The closing of the Myrtle Beach Air Force Base has opened the door for additional growth in industry and commerce in the Myrtle Beach area. The City of North Myrtle Beach has an interconnection with Grand Strand Water and Sewer Authority/Wetlands projects to handle additional wastewater flows in the North Myrtle Beach area, which should encourage additional growth.

Watershed Protection and Restoration

Total Maximum Daily Loads (TMDLs)

A total maximum daily load (TMDL) for oxygen demanding substances has been developed for the main stem of the Waccamaw River and the Atlantic Intracoastal Waterway (AIWW) in watersheds 02040206-140, 03040206-150, and 03040207-020. The TMDL addresses 12 separate monitoring stations on the State's 1998 303(d) list of impaired waters. The TMDL, based on a maximum 0.1 mg/l deficit allowed in waters that do not meet applicable dissolved oxygen standards due to natural conditions, will result in a decrease of approximately 63% in the permitted oxygen demanding load discharged to the system. The decreased loadings are being implemented through the NPDES permitting system with new, more restrictive limits becoming final at the conclusion of appropriate compliance schedules.

Special Projects

Beach Monitoring Workgroup Results

The Department ceased collection of water samples in the surf zone in 1980 due to resource limitations. There were no ocean discharges of treated wastewater and other sources of ocean pollution were limited. Prior to 1980, data did not show violations of the water quality standards in the surf zone related to stormwater discharge. A Beach Monitoring Workgroup was initiated in response to concerns of stormwater inputs in South Carolina's surf zone. Although South Carolina has limited sources of pollution to the surf, an update of surf water quality conditions was considered useful. The workgroup consisted of Department personnel and coastal municipal and county leaders. The consensus of the workgroup was that a voluntary baseline surf water quality project should be conducted in order to evaluate whether South Carolina needs to implement an ocean beach bacteria sampling program.

During the summer of 1997, coastal governments collected and analyzed 1,400 surf and stormwater samples during "dry" (3 or more days post rain event) and "wet" (within 3 hours of the first rain of 0.1 inches or more following a dry period) weather. Samples were collected in the surf at both low and high tides, and at stormwater discharges to the ocean 100 feet above and below the discharge, along with a sample every 2-3 miles of beach. The data was then submitted to the Department for evaluation to characterize the water quality of South Carolina beaches.

Beaches without stormwater outlets or swashes (Kiawah Island, Sullivans Island, Isle of Palms, Dewees Island, Pawleys Island, and unincorporated Georgetown County) did not exceed the EPA recommended geometric mean (no more than 35 enterococcus bacteria per 100 milliliters of water) in the surf during dry or wet weather conditions. Beaches exposed to discharges from swashes and/or stormwater outlets (Surfside Beach, Myrtle Beach, North Myrtle Beach, and unincorporated Horry County) did not exceed the EPA recommended geometric mean during dry weather conditions; however, wet weather effects on surf bacteria densities varied from site to site and with rainfall amount. Many wet weather surf samples exceeded the EPA example calculated single-sample limit; highest single-sample densities were associated with rainfall amounts greater than one inch. Tide stage showed no discernible effect on surf bacteria densities at any location.

The City of Myrtle Beach investigated swash and stormwater quality in conjunction with their surf monitoring. Results indicate that bacteria densities within swashes and drainage pipes are frequently higher than the EPA example calculated limit in dry weather, and consistently above this level during wet weather. Densities in Withers Swash at Ocean Boulevard in dry weather were lower at high tide than at low tide due to ocean water inflow. Stormwater inflows via swashes and drain pipes are responsible for observed high levels of bacteria in surf during wet weather.

Recommendations from the workgroup include the following: ***Do not swim or allow children to play in swashes or stormwater***; ***in areas with swashes or stormwater outfalls, do not swim in the ocean during rainfall; educate and advise the public about the health risks of swimming; maintain a State/local partnership to regularly monitor surf in areas with beach stormwater discharges during swimming season***; ***reduce bacteria inputs to surface waters from residences and parks***; ***and prevent and control sources of pathogens to beaches from stormwater discharges and nonpoint sources***.

The data collected in 1999 support the posting of permanent signs at specific beach swashes and storm drain outfalls. A voluntary surf water quality monitoring program, with SCDHEC oversight, supported by local coastal municipalities and counties continues. The Department received a one-time appropriation from the S.C. General Assembly in 1999 to complement the sampling efforts of the local communities. SCDHEC has requested continued funding for this program.

In future years, it is hoped that resources will allow for weekly sampling at all stations during the months of May through September. After significant sampling has been achieved, it may be possible to make predictions about surf contamination based on trend data. This involves looking at the principal factors of rainfall amounts, outfall or swash location, tidal influences, and prevailing winds. Modeling could be effectively used to predict the areas to post, and possibly, the duration of posting. Investigations also need to be conducted to identify bacteria contributions to the stormwater.

Development & Implementation of a S.C. Coast-A-Syst

This project targets homeowners living along the Atlantic Intracoastal Waterway (AIWW) and Socastee Creek (watershed 03040206-140) and the AIWW and Little River (watershed 03040207-020). Like much of the coast, these areas are experiencing rapid development and increased populations, while also harboring fragile water resources for recreation and marine ecology. High fecal coliform bacteria counts, water quality non-supportive of aquatic life because of low dissolved oxygen, and pH excursions exist in local waterbodies.

To address these problems, the S.C. Sea Grant Consortium and Clemson University received Section 319 funds to develop and evaluate a program called South Carolina Coast-A-Syst. This product, modeled after the Home*A*Syst and Farm-A-Syst programs, will be used to teach watershed residents and waterbody users responsible practices for protecting water quality, with the ultimate goal to reduce bacteria and nutrient input into nearby waterbodies from urban/suburban activities and land development. Research will be conducted through surveys to determine what BMPs are appropriate for coastal South Carolina, where education about nonpoint source is lacking, and how best to reach homeowners in providing continued education. Education of coastal residents will include identification of practices which detrimentally affect water quality, reasons why those practices do so, and instructions in better water quality management practices.

Sea Grant Extension and Clemson Extension are publishing a S.C. Coast-A-Syst packet, which will include self-assessments and fact sheets on homeowner practices. Sea Grant Extension will also train Extension agents, Master Gardeners, and homeowner associations to administer this homestead self-assessment program, distribute the program and materials through homeowner associations and other public groups, provide support for the program through the Horry County Extension Service, and provide electronic distribution of the program via the world wide web.

03040207-030

(Sampit River)

General Description

Watershed 03040207-030 (formerly 03040207-040) is located in Georgetown County and consists primarily of the ***Sampit River*** and its tributaries. The watershed occupies 104,150 acres of the Lower Coastal Plain and Coastal Zone regions of South Carolina. The predominant soil types consist of an association of the Bladen-Wahee-Cape Fear-Eulonia series. The erodibility of the soil (K) averages 0.16; the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 72.6% forested land, 12.2% scrub/shrub land, 4.3% forested wetland (swamp), 3.9% urban land, 3.7% nonforested wetland (marsh), 1.8% water, 1.3% agricultural land, and 0.2% barren land.

Bond Swamp (Boety Bay, Mackey Bay, Bind Bay, Canaan Bay, Ditch Branch, Canaan Branch, Summons Swamp) flows into Boggy Swamp (Cherryhill Swamp, Machine Branch, Britt Branch) which forms the Sampit River. The Sampit River accepts drainage from Spring Gully, Little Kilsock Bay, Ports Creek, Canaan Branch, Pennyroyal Creek (Big Kilsock Bay, Flat Bay, Turkey Creek), and Whites Creek before draining into Winyah Bay. There are a few ponds (totaling 819.8 acres), 128.7 stream miles, and 987.8 acres of estuarine areas in this watershed. The upper reaches of the watershed, including Boggy Swamp and its tributaries are classified FW* (dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8/5). The Sampit River is classified FW*/SB dependent on the freshwater inflow from its neighboring rivers (the Pee Dee and Waccamaw Rivers), and the remaining streams in the watershed are classified FW.

Water Quality

Station #	Type	Class	Description
MD-075	P	SB/FW*	SAMPIT R. BETWEEN MOUTHS OF PORTS CK & PENNYROYAL CK
MD-076N	S	FW	TURKEY CREEK S-22-42 SW OF GEORGETOWN
MD-149	P	FW	WHITES CK 100 YDS UPSTREAM OF JUNCTION WITH SAMPIT RIVER
MD-077	P	SB/FW*	SAMPIT RIVER AT US 17
MD-073	P	SB/FW*	SAMPIT RIVER OPPOSITE AMERICAN CYANAMID CHEMICAL CO
MD-074	S	SB/FW*	SAMPIT RIVER AT CHANNEL MARKER #30

Sampit River* -** There are four monitoring sites along the Sampit River and recreational uses are fully supported at all sites. At the furthest upstream site ***(MD-075), aquatic life uses are partially supported due to dissolved oxygen excursions, compounded by a significant decreasing trend in dissolved oxygen and a significant increasing trend in turbidity. This is a tidally influenced blackwater system, characterized by naturally low dissolved oxygen concentrations; however, the decreasing trend in dissolved oxygen suggests that conditions are deteriorating for this parameter. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters.

Aquatic life uses are fully supported at the next site downstream ***(MD-077)***; however, there is a significant increasing trend in turbidity. There is a significant decreasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. Further downstream ***(MD-073)***, aquatic life uses are also fully supported; however, there is a significant decreasing trend in dissolved oxygen concentration and a very high concentration of zinc was measured in 1994. There is a significant decreasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. Aquatic life uses are fully supported at the furthest downstream site ***(MD-074)***.

Turkey Creek (MD-076N) - Aquatic life uses are fully supported; however, there is a significant increasing trend in five-day biochemical oxygen demand. There is a significant increasing trend in pH. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are partially supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria concentration.

Whites Creek (MD-149) - Aquatic life uses are not supported due to occurrences of zinc in excess of the aquatic life acute standards, including a very high concentration of zinc measured in 1995. In addition, there was a significant increasing trend in turbidity. This area is transitional between freshwater and saltwater and shows characteristics of both. It is a tidally influenced blackwater system, which are often characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions occurred, they were typical of values seen in tidally influenced systems with significant marsh and swamp drainage and were considered natural, not standards violations. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are fully supported.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
SAMPIT RIVER	SC0000868
INTERNATIONAL PAPER/GEORGETOWN	MAJOR INDUSTRIAL
PIPE #: 001 FLOW: 27.4	WATER QUALITY
WQL FOR BOD5	
SAMPIT RIVER	SC0001431

GEORGETOWN STEEL CORP. MAJOR INDUSTRIAL
PIPE #: 002 FLOW: M/R EFFLUENT
PIPE #: 001 FLOW: 1.20 WQL FOR BOD5

SAMPIT RIVER SC0036111
3V, INC. MAJOR INDUSTRIAL
PIPE #: 001 FLOW: 7.0 WATER QUALITY
PIPE #: 001 FLOW: 9.7 (PHASE 2) WATER QUALITY
PIPE #: 001 FLOW: 15.0 (PHASE 3) WATER QUALITY
WQL FOR NH3N,BOD5

SAMPIT RIVER SC0040029
CITY OF GEORGETOWN MAJOR DOMESTIC
PIPE #: 001 FLOW: 4.5 EFFLUENT
PIPE #: 001 FLOW: 12.0; PROPOSED EFFLUENT

SAMPIT RIVER SCG645013
CITY OF GEORGETOWN/WTP MINOR INDUSTRIAL
PIPE #: 001 FLOW: 0.15 WATER QUALITY
WQL FOR TRC

TURKEY CREEK SC0028711
GCW&SD/HARMONY HILLS MHP MINOR DOMESTIC
PIPE #: 001 FLOW: 0.0360 WATER QUALITY
WQL FOR DO,NH3N,BOD5

TURKEY CREEK SC0022471
S.C. PUBLIC SERV. AUTH./WINYAH BAY MAJOR INDUSTRIAL
PIPE #: 001 FLOW: M/R EFFLUENT

TURKEY CREEK SC0042960
INTERNATIONAL PAPER/SANTEE MINOR INDUSTRIAL
PIPE #: 001 FLOW: M/R EFFLUENT

WHITES CREEK SC0030732
CWS/WHITES CREEK LINCOLNSHIRE SD MINOR DOMESTIC
PIPE #: 001 FLOW: 0.125 WATER QUALITY
WQL FOR DO,TRC,NH3N,BOD5

LITTLE KILSOCK BAY SC0039110
GCSD/SAMPIT ELEMENTARY SCHOOL MINOR DOMESTIC
PIPE #: 001 FLOW: 0.015 WATER QUALITY
WETLAND; WQL FOR DO,TRC,NH3N,BOD5

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***PERMIT #***
FACILITY TYPE ***STATUS***

INTERNATIONAL PAPER, INC. LANDFILL 222435-1601 (IWP-190, IWP-073)
INDUSTRIAL ---------

AMERICAN CYANAMID IWP-070
INDUSTRIAL ----------

Water Supply

Portions of this watershed fall within the Waccamaw Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.23).

Growth Potential

There is a moderate to high potential for growth in this watershed, which contains the City of Georgetown and is adjacent to the Town of Andrews. Water and sewer infrastructure are located in and immediately around these municipalities, and also southeast of Georgetown which supports an industrial area. There are currently five industrial areas in the watershed, one south of Andrews and four located in or near the City of Georgetown. Based on the location of facilities and infrastructure required by many industries (a shipping port, rail lines, commercial air service, highway access, and water and sewer infrastructure), the eastern edge of the watershed has the potential for significant industrial growth. Outside these areas, the watershed is rural with agricultural uses and timberlands.

03040207-040

(Winyah Bay)

General Description

Watershed 03040207-040 formerly 03040207-050) is located in Georgetown County and consists primarily of ***Winyah Bay*** and its tributaries. The watershed occupies 70,177 acres of the Coastal Zone region of South Carolina. The predominant soil types consist of an association of the Bohicket-Leon-Lynn Haven series. The erodibility of the soil (K) averages 0.10; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 34.4% forested land, 24.5% nonforested wetland, 23.2% water, 6.1% forested wetland, 5.2% urban land, 4.8% scrub/shrub land, 1.7% barren land, and 0.1% agricultural land.

The Sampit River Watershed, the Pee Dee River Watershed, and the Waccamaw River Watershed all join to form Winyah Bay, which is classified SB and drains into the Atlantic Ocean. White Oak Bay drains into the upper portion of Winyah Bay, and Kinloch Creek and Mosquito Creek (Lagoon Creek) drain into both Winyah Bay and North Santee Bay (in Santee River Basin), all classified SB. Esterville Minim Creek Canal (SA) runs along Cat Island and connects the North Santee Bay to Winyah Bay through the Western Channel (SB). Mud Bay (SB) drains into Winyah Bay and accepts drainage from No Mans Friend Creek (SB), Sign Creek (SB), Oyster Bay (SB), Jones Creek (Dividing Creek-SB, Nancy Creek-SB, Little Jones Creek-SFH, Haulover Creek-SB, Boor Creek-ORW, Noble Slough-SB), and Cotton Patch Creek (SB). Jones Creek (SB, SFH, ORW) connects Mud Bay to North Inlet (ORW). Streams draining into Jones Creek above Oyster Bay include Wood Creek (Double Prong Creek, Little Wood Creek), Duck Creek, Perry Creek, and Bobs Garden Creek, all classified ORW. Town Creek (SA, SFH, ORW) drains to Mud Bay through Oyster Bay and to North Inlet. Town Creek accepts drainage from Sawmill Creek (SB), Cutoff Creek (SFH), and Mud Creek (SFH), together with Clambank Creek, Bread and Butter Creek, and Old Man Creek (Bly Creek, Sea Creek Bay, Bass Hole Creek, Bass Hole Bay), which are all classified ORW. Sixty Bass Creek (SFH, ORW) connects Town Creek to North Inlet, and Debidue Creek (SFH, ORW) accepts drainage from Cooks Creek (ORW) and joins Town Creek in North Inlet. Pawleys Island Creek (SFH) drains out of Pawleys Inlet (SFH) and also out of Midway Inlet (Clubhouse Creek) at the top of the watershed. There are a total of 86.8 acres of lake waters and 16,609.3 acres of estuarine areas in this watershed.

Water Quality

Station #	Type	Class	Description
(MD-080)	P	SB	WINYAH BAY @ MARKER 92 AT MOUTH OF PEE DEE AND WACCAMAW RIVERS

Winyah Bay (MD-080) - This station is located in 03040201-170, but also reflects a mixing area of waters including Winyah Bay and the Waccamaw River (03040206-150). Aquatic life uses are fully supported at ***MD-080***; however, there is a significant decreasing trend in dissolved oxygen. Significant decreasing trends in five-day biochemical oxygen demand and total suspended solids suggest improving conditions for these parameters. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Yawkey Wildlife Center - The rice fields of the wildlife center were treated in 1994, 1995, and again in 1997 with aquatic herbicides to reduce the spread of *Phragmites* and improve access for waterfowl management and hunting activities.

Baruch Waterway - The Baruch Waterway was treated in 1999 with aquatic herbicides to reduce the spread of *Phragmites* to the greatest extent possible.

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
K061 BAGHOUSE DUST WASTE PILE ----------	----------- CLOSED
GEORGETOWN COUNTY AIRPORT INDUSTRIAL	IWP-194 -----------

Land Application Sites

LAND APPLICATION SYSTEM ***FACILITY NAME***	***ND#*** ***TYPE***
SPRAYFIELD INLET POINT SOUTH, PHASE 3	ND0074616 DOMESTIC
SPRAYFIELD GCW&SA/DEBORDIEU COLONY	ND0065668 DOMESTIC

Water Supply

Portions of this watershed fall within the Waccamaw Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.23).

Growth Potential

There is an overall low potential for growth in this watershed, which contains the Town of Pawleys Island and a portion of the City of Georgetown. The northern most area is expected to experience a high population increase, a medium increase is expected along the south side of Winyah Bay and the remaining area is only expected to experience a low increase due to lands protected from development by land trusts. Water and sewer infrastructure is located in the Georgetown area and in several large developments on the Waccamaw Neck. The watershed is largely rural with residential uses, timberlands, and large tracts of protected land.

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APPENDIX A.

Lynches River Basin

Ambient Water Quality Monitoring Site Descriptions

Station #	Type	Class	Description
03040202-010			
(PD-113)	P	FW	LYNCHES RIVER AT SC 9 WEST OF PAGELAND
03040202-020			
PD-672	BIO	FW	HILLS CREEK AT S-13-105
PD-333	S	FW	HILLS CREEK AT S-13-105
03040202-030			
PD-113	P	FW	LYNCHES RIVER AT SC 9 WEST OF PAGELAND
PD-179	S	FW	N. BRANCH WILDCAT CREEK AT S-29-39 1 MILE S OF TRADESVILLE
PD-679	BIO	FW	NORTH BRANCH WILDCAT CREEK AT SR 178
PD-180	S	FW	S. BRANCH WILDCAT CREEK AT S-29-39 2 MILE S OF TRADESVILLE
03040202-040			
PD-182	BIO	FW	FLAT CREEK AT SR 601
PD-342	W	FW	FLAT CREEK AT S-29-123
03040202-050			
PD-001	W/BIO	FW	LYNCHES RIVER AT SC 265
PD-066	S	FW	LYNCHES RIVER AT S-28-42
PD-009	S	FW	LYNCHES RIVER AT US 1
(PD-080)	P	FW	LYNCHES RIVER AT S-28-15 4.5 MILES SE BETHUNE
03040202-060			
PD-647	BIO	FW	LITTLE FORK CREEK AT COUNTY ROAD 39
PD-215	S	FW	LITTLE FORK CREEK AT S-13-265 1.5 MILES SW JEFFERSON
PD-067	S	FW	FORK CREEK AT SC 151
PD-068	S	FW	FORK CREEK AT UNNUMBERED ROAD 1.5 MILES SW JEFFERSON
03040202-070			
PD-640	BIO	FW	LITTLE LYNCHES CREEK AT S-29-88
PD-335	S	FW	HORTON CREEK AT S-29-95
PD-005	S	FW	TODDS BRANCH AT S-29-564 1.5 MILES NE OF KERSHAW
PD-006	P	FW	LITTLE LYNCHES RIVER AT US 601 2 MILES NE KERSHAW
PD-334	S	FW	HAILE GOLD MINE CREEK AT S-29-188
PD-632	BIO	FW	LITTLE LYNCHES RIVER AT SC 157
PD-109	P	FW	LITTLE LYNCHES RIVER AT SC 341, 4 MILES SE OF KERSHAW
(PD-343)	W	FW	LITTLE LYNCHES RIVER AT S-28-42
PD-329	S	FW	LICK CREEK AT S-29-13 ABOVE KERSHAW PLANT
PD-669	BIO	FW	HANGING ROCK CREEK AT SR 770
PD-328	S	FW	HANGING ROCK CREEK OFF S-29-84 1.6 MILES S OF KERSHAW
03040202-080			
PD-343	W	FW	LITTLE LYNCHES RIVER AT S-28-42
PD-344	W	FW	LITTLE LYNCHES RIVER AT SC 341, 3.5 MILES SE OF BETHUNE
PD-678	BIO	FW	BEAVER DAM CREEK AT SR 59
03040202-090			
PD-080	P	FW	LYNCHES RIVER AT S-28-15 4.5 MILES SE BETHUNE
PD-071	P	FW	LYNCHES RIVER AT US 15/SC 34
PD-112	S	FW	COUSAR BRANCH 1/4 MILES BELOW BISHOPVILLE FINISHING CO

PD-364	P/BIO	FW	LYNCHES RIVER AT US 401
PD-319	P	FW	LYNCHES RIVER AT SC 403
PD-093	P	FW	LYNCHES RIVER AT S-21-55
03040202-100			
PD-229	S	FW*	NEWMAN SWAMP AT S-16-449 0.9 MILES NE OF LAMAR
PD-072	S	FW*	SPARROW SWAMP AT S-16-697 2.5 MILES E OF LAMAR
PD-332	P	FW*	SPARROW SWAMP AT S-21-55 NEAR JOHNSONS CROSSROADS
03040202-110			
PD-345	W	FW*	LAKE SWAMP AT S-21-38
03040202-120			
PD-041	P	FW	LYNCHES RIVER AT US 52 NEAR EFFINGHAM
PD-281	P	FW	LYNCHES RIVER AT S-21-49 5 MILES NW JOHNSONVILLE
03040202-130			
PD-168	S	FW*	BIG SWAMP AT S-21-360 1.1 MILES W OF PAMPLICO
PD-169	S	FW*	BIG SWAMP AT US 378 & SC 51 0.9 MILES W OF SALEM
03040202-140			
PD-346	W	FW	CAMP BRANCH AT S-21-278
03040202-150			
PD-085	S	FW*	LAKE SWAMP AT US 378
PD-086A	S	FW*	LAKE SWAMP ON SC 341
03040202-160			
PD-314	W	FW	SINGLETON SWAMP AT S-21-67
03040202-170			
PD-087	S	FW*	LAKE SWAMP AT SC 341 2.6 MILES W OF JOHNSONVILLE

Water Quality Data

Spreadsheet Legend

Station Information:

STATION NUMBER Station ID

TYPE SCDHEC station type code

- P = Primary station, sampled monthly all year round
- S = Secondary station, sampled monthly May - October
- P* = Secondary station upgraded to primary station parameter coverage and sampling frequency for basin study
- W = Special watershed station added for the Pee Dee River Basin study
- BIO = Indicates macroinvertebrate community data assessed

WATERBODY NAME Stream or Lake Name

CLASS Stream classification at the point where monitoring station is located

Parameter Abbreviations and Parameter Measurement Units:

DO	Dissolved Oxygen (mg/l)	NH3	Ammonia (mg/l)
BOD	Five-Day Biochemical Oxygen Demand (mg/l)	CD	Cadmium (ug/l)
pH	pH (SU)	CR	Chromium (ug/l)
TP	Total Phosphorus (mg/l)	CU	Copper (ug/l)
TN	Total Nitrogen (mg/l)	PB	Lead (ug/l)
TURB	Turbidity (NTU)	HG	Mercury (ug/l)
TSS	Total Suspended Solids (mg/l)	NI	Nickel (ug/l)
BACT	Fecal Coliform Bacteria (#/100 ml)	ZN	Zinc (ug/l)

Statistical Abbreviations:

N For standards compliance, number of surface samples collected between January, 1994 and December, 1998.
For trends, number of surface samples collected between January, 1984 and December, 1998.
For total phosphorus, an additional trend period of January, 1992 to December, 1998 is also reported.

EXC. Number of samples contravening the appropriate standard

% Percentage of samples contravening the appropriate standard

MEAN EXC. Mean of samples which contravened the applied standard

MED For heavy metals with a human health criterion, this is the median of all surface samples between January, 1994 and December, 1998. DL indicates that the median was the detection limit.

MAG Magnitude of any statistically significant trend, average change per year, expressed in parameter measurement units

GEO MEAN Geometric mean of fecal coliform bacteria samples collected between January, 1994 and December, 1998

Key to Trends:

D Statistically significant decreasing trend in parameter concentration
I Statistically significant increasing trend in parameter concentration
* No statistically significant trend
Blank Insufficient data to test for long term trends

Water Quality Summary - Lynches River Basin

STATION			FIRST	DO	DO	DO	MEAN	TRENDS (84-98)						pH	pH	pH	MEAN	TRENDS (84-98)		
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	DO	N	MAG	BOD	N	MAG	N	EXC.	%	EXC.	PH	N	MAG
03040202020																				
PD-672	BIO	HILL CK	FW																	
PD-333	P*	HILLS CK	FW	34	0	0	0	*	56		*	55		34	0	0	0	*	55	
03040202030																				
PD-113	P	LYNCHES RVR	FW	59	0	0	0	*	168		D	166	-0.100	59	1	2	5.9	*	167	
PD-179	S	N BRANCH WILDCAT CK	FW	29	0	0	0	*	82		D	80	-0.074	29	0	0	0	D	81	-0.043
PD-679	BIO	WILDCAT CK	FW																	
PD-180	S	S BRANCH WILDCAT CK	FW	28	0	0	0	*	81		D	78	-0.041	28	0	0	0	*	80	
03040202040																				
PD-182	BIO	FLAT CK	FW																	
PD-342	PD	FLAT CK	FW	18	0	0	0							18	2	11	5.65			
03040202060																				
PD-647	BIO	LITTLE FORK CK	FW																	
PD-215	P*	LITTLE FORK CK	FW	34	0	0	0	*	101		*	91		34	2	6	6.4	*	101	
PD-067	S	FORK CK	FW	28	0	0	0	*	93		I	82	0.033	28	0	0	0	*	92	
PD-068	P*	FORK CK	FW	34	0	0	0	*	101		*	90		34	0	0	0	*	101	
03040202050																				
PD-001	PD/BIO	LYNCHES RVR	FW	19	0	0	0							19	0	0	0			
PD-066	S	LYNCHES RVR	FW	28	0	0	0	*	87		*	82		28	0	0	0	*	86	
PD-009	P*	LYNCHES RVR	FW	35	0	0	0	*	92		*	86		35	0	0	0	*	92	
03040202070																				
PD-640	BIO	LITTLE LYNCHES CK	FW																	
PD-335	S	HORTON CK	FW	27	0	0	0	*	47		*	46		27	0	0	0	*	46	
PD-005	S	TODDS BRANCH	FW	28	0	0	0	*	82		D	80	-0.061	28	1	4	5.2	*	81	
PD-006	P	LITTLE LYNCHES RVR	FW	58	0	0	0	I	169	0.033	D	164	-0.040	58	1	2	5.5	*	167	
PD-334	S	HAILE GOLD MINE CK	FW	28	0	0	0	*	49		D	45	-0.075	28	23	82	4.765	I	47	0.150
PD-632	BIO	LITTLE LYNCHES RVR	FW																	
PD-109	P	LITTLE LYNCHES RVR	FW	59	0	0	0	I	82	0.150	*	82		59	2	3	5.8	*	82	
PD-329	S	LICK CK	FW	27	0	0	0	*	79		D	76	-0.075	27	0	0	0	*	78	
PD-669	BIO	HANGING ROCK CK	FW																	
PD-328	S	HANGING ROCK CK	FW	26	0	0	0	I	78	0.071	D	76	-0.082	26	0	0	0	*	77	
03040202080																				
PD-343	PD	LITTLE LYNCHES RVR	FW	18	0	0	0							18	0	0	0			
PD-344	PD	LITTLE LYNCHES RVR	FW	18	1	6	2.5							18	4	22	5.9			
PD-678	BIO	BEAVER DAM CK	FW																	

Water Quality Summary - Lynches River Basin

STATION			FIRST	TRENDS (92-98)			TRENDS (84-98)											
NUMBER	TYPE	WATERBODY NAME	CLASS	TP	N	MAG	TP	N	MAG	TN	N	MAG	TURB	N	MAG	TSS	N	MAG
03040202020																		
PD-672	BIO	HILL CK	FW															
PD-333	P*	HILLS CK	FW	*	39		*	50		*	16		*	56				
03040202030																		
PD-113	P	LYNCHES RVR	FW	*	67		*	157		D	157	-0.015	*	166				
PD-179	S	N BRANCH WILDCAT CK	FW	*	33		*	77					*	82				
PD-679	BIO	WILDCAT CK	FW															
PD-180	S	S BRANCH WILDCAT CK	FW	*	34		D	77	0.000				I	80	0.240			
03040202040																		
PD-182	BIO	FLAT CK	FW															
PD-342	PD	FLAT CK	FW															
03040202060																		
PD-647	BIO	LITTLE FORK CK	FW															
PD-215	P*	LITTLE FORK CK	FW	*	43		D	91	-0.004				*	91				
PD-067	S	FORK CK	FW	*	35		D	81	-0.001				I	82	0.376			
PD-068	P*	FORK CK	FW	*	41		*	88					I	89	0.333			
03040202050																		
PD-001	PD/BIO	LYNCHES RVR	FW															
PD-066	S	LYNCHES RVR	FW	I	35	0.032	*	77					*	82				
PD-009	P*	LYNCHES RVR	FW	D	40	-0.008	D	80	-0.001				*	86				
03040202070																		
PD-640	BIO	LITTLE LYNCHES CK	FW															
PD-335	S	HORTON CK	FW	*	32		*	44					*	46				
PD-005	S	TODDS BRANCH	FW	*	34		D	79	-0.005				*	82				
PD-006	P	LITTLE LYNCHES RVR	FW	D	70	-0.001	D	160	-0.001	D	157	-0.014	I	167	0.200			
PD-334	S	HAILE GOLD MINE CK	FW	D	33	0.000	*	43					*	47				
PD-632	BIO	LITTLE LYNCHES RVR	FW															
PD-109	P	LITTLE LYNCHES RVR	FW	*	70		*	76		*	66		I	80	0.833			
PD-329	S	LICK CK	FW	*	33		D	76	-0.002				*	77				
PD-669	BIO	HANGING ROCK CK	FW															
PD-328	S	HANGING ROCK CK	FW	*	30		D	70	-0.006				*	77				
03040202080																		
PD-343	PD	LITTLE LYNCHES RVR	FW															
PD-344	PD	LITTLE LYNCHES RVR	FW															
PD-678	BIO	BEAVER DAM CK	FW															

Water Quality Summary - Lynches River Basin

STATION			FIRST	GEO	BACT	BACT	BACT	MEAN	TRENDS (84-98)			NH3	NH3	CD	CD	CD	CD
NUMBER	TYPE	WATERBODY NAME	CLASS	MEAN	N	EXC.	%	EXC.	BACT	N	MAG	N	EXC.	N	EXC.	MED.	%
03040202020																	
PD-672	BIO	HILL CK	FW														
PD-333	P*	HILLS CK	FW	251.882	34	9	26	2698	*	56		15	0	5	0	DL	0
03040202030																	
PD-113	P	LYNCHES RVR	FW	148.861	59	6	10	2940	D	168	-15.227	56	0	21	0	DL	0
PD-179	S	N BRANCH WILDCAT CK	FW	474.172	29	14	48	1704	*	82							
PD-679	BIO	WILDCAT CK	FW														
PD-180	S	S BRANCH WILDCAT CK	FW	171.716	28	3	11	3933	D	81	-22.857						
03040202040																	
PD-182	BIO	FLAT CK	FW														
PD-342	PD	FLAT CK	FW	224.497	18	3	17	2803				18	0	6	0	DL	0
03040202060																	
PD-647	BIO	LITTLE FORK CK	FW														
PD-215	P*	LITTLE FORK CK	FW	32.292	33	1	3	6100	D	95	-13.667	18	0	6	0	DL	0
PD-067	S	FORK CK	FW	329.463	28	9	32	2344	*	88							
PD-068	P*	FORK CK	FW	295.874	34	10	29	1859	*	96		17	0	6	0	DL	0
03040202050																	
PD-001	PD/BIO	LYNCHES RVR	FW	136.954	18	1	6	4100				19	0	6	0	DL	0
PD-066	S	LYNCHES RVR	FW	299.11	28	6	21	3365				0	0	6	0	DL	0
PD-009	P*	LYNCHES RVR	FW	113.258	34	4	12	1138	*	85		18	0	5	1	DL	20
03040202070																	
PD-640	BIO	LITTLE LYNCHES CK	FW														
PD-335	S	HORTON CK	FW	296.648	27	8	30	1776	*	47							
PD-005	S	TODDS BRANCH	FW	459.922	28	13	46	3054	D	82	-18.636						
PD-006	P	LITTLE LYNCHES RVR	FW	301.735	58	13	22	2740	*	168		56	0	20	0	DL	0
PD-334	S	HAILE GOLD MINE CK	FW	11.8095	28	1	4	14000	*	48		1	0	8	0	DL	0
PD-632	BIO	LITTLE LYNCHES RVR	FW														
PD-109	P	LITTLE LYNCHES RVR	FW	133.693	59	4	7	1945	*	82		55	0	20	0	DL	0
PD-329	S	LICK CK	FW	734.174	27	20	74	1980	*	79							
PD-669	BIO	HANGING ROCK CK	FW														
PD-328	S	HANGING ROCK CK	FW	169.982	26	3	12	6993	*	78							
03040202080																	
PD-343	PD	LITTLE LYNCHES RVR	FW	160.484	18	4	22	1280				18	0	6	0	DL	0
PD-344	PD	LITTLE LYNCHES RVR	FW	95.3927	16	3	19	570				16	0	6	0	DL	0
PD-678	BIO	BEAVER DAM CK	FW														

Water Quality Summary - Lynches River Basin

STATION			FIRST	CR	CR	CR	CR	CU	CU	CU	PB	PB	PB	PB	HG	HG	HG	HG
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	MED.	%	N	EXC.	%	N	EXC.	MED.	%	N	EXC.	MED.	%
03040202020																		
PD-672	BIO	HILL CK	FW															
PD-333	P*	HILLS CK	FW	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040202030																		
PD-113	P	LYNCHES RVR	FW	21	0	DL	0	21	1	5	21	0	DL	0	21	0	DL	0
PD-179	S	N BRANCH WILDCAT CK	FW															
PD-679	BIO	WILDCAT CK	FW															
PD-180	S	S BRANCH WILDCAT CK	FW															
03040202040																		
PD-182	BIO	FLAT CK	FW															
PD-342	PD	FLAT CK	FW	5	0	DL	0	6	0	0	6	0	DL	0	6	0	DL	0
03040202060																		
PD-647	BIO	LITTLE FORK CK	FW															
PD-215	P*	LITTLE FORK CK	FW	6	0	DL	0	6	5	83	6	0	DL	0	6	0	DL	0
PD-067	S	FORK CK	FW															
PD-068	P*	FORK CK	FW	6	0	DL	0	6	2	33	6	0	DL	0	6	0	DL	0
03040202050																		
PD-001	PD/BIO	LYNCHES RVR	FW	6	0	DL	0	6	0	0	6	0	DL	0	6	0	DL	0
PD-066	S	LYNCHES RVR	FW	6	0	DL	0	6	3	50	6	0	DL	0	7	0	DL	0
PD-009	P*	LYNCHES RVR	FW	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040202070																		
PD-640	BIO	LITTLE LYNCHES CK	FW															
PD-335	S	HORTON CK	FW															
PD-005	S	TODDS BRANCH	FW															
PD-006	P	LITTLE LYNCHES RVR	FW	20	0	DL	0	20	0	0	20	0	DL	0	20	0	DL	0
PD-334	S	HAILE GOLD MINE CK	FW	8	0	DL	0	8	1	13	8	0	DL	0	8	0	DL	0
PD-632	BIO	LITTLE LYNCHES RVR	FW															
PD-109	P	LITTLE LYNCHES RVR	FW	20	0	DL	0	20	0	0	20	0	DL	0	20	0	DL	0
PD-329	S	LICK CK	FW															
PD-669	BIO	HANGING ROCK CK	FW															
PD-328	S	HANGING ROCK CK	FW															
03040202080																		
PD-343	PD	LITTLE LYNCHES RVR	FW	6	0	DL	0	6	0	0	6	0	DL	0	6	0	DL	0
PD-344	PD	LITTLE LYNCHES RVR	FW	6	0	DL	0	6	0	0	6	0	DL	0	6	0	DL	0
PD-678	BIO	BEAVER DAM CK	FW															

Water Quality Summary - Lynches River Basin

STATION NUMBER	TYPE	WATERBODY NAME	FIRST CLASS	NI N	NI EXC.	NI %	ZN N	ZN EXC.	ZN %
03040202020									
PD-672	BIO	HILL CK	FW						
PD-333	P*	HILLS CK	FW	5	0	0	5	0	0
03040202030									
PD-113	P	LYNCHES RVR	FW	21	0	0	21	0	0
PD-179	S	N BRANCH WILDCAT CK	FW						
PD-679	BIO	WILDCAT CK	FW						
PD-180	S	S BRANCH WILDCAT CK	FW						
03040202040									
PD-182	BIO	FLAT CK	FW						
PD-342	PD	FLAT CK	FW	6	0	0	6	0	0
03040202060									
PD-647	BIO	LITTLE FORK CK	FW						
PD-215	P*	LITTLE FORK CK	FW	6	0	0	6	0	0
PD-067	S	FORK CK	FW						
PD-068	P*	FORK CK	FW	6	0	0	6	0	0
03040202050									
PD-001	PD/BIO	LYNCHES RVR	FW	6	0	0	6	0	0
PD-066	S	LYNCHES RVR	FW	6	0	0	6	0	0
PD-009	P*	LYNCHES RVR	FW	5	0	0	5	0	0
03040202070									
PD-640	BIO	LITTLE LYNCHES CK	FW						
PD-335	S	HORTON CK	FW						
PD-005	S	TODDS BRANCH	FW						
PD-006	P	LITTLE LYNCHES RVR	FW	20	0	0	20	1	5
PD-334	S	HAILE GOLD MINE CK	FW	8	0	0	8	0	0
PD-632	BIO	LITTLE LYNCHES RVR	FW						
PD-109	P	LITTLE LYNCHES RVR	FW	20	0	0	20	0	0
PD-329	S	LICK CK	FW						
PD-669	BIO	HANGING ROCK CK	FW						
PD-328	S	HANGING ROCK CK	FW						
03040202080									
PD-343	PD	LITTLE LYNCHES RVR	FW	6	0	0	6	0	0
PD-344	PD	LITTLE LYNCHES RVR	FW	6	0	0	6	0	0
PD-678	BIO	BEAVER DAM CK	FW						

Water Quality Summary - Lynches River Basin

STATION			FIRST		DO	DO	DO	MEAN	TRENDS (84-98)							pH	pH	pH	MEAN	TRENDS (84-98)		
NUMBER	TYPE	WATERBODY NAME	CLASS		N	EXC.	%	EXC.	DO	N	MAG	BOD	N	MAG		N	EXC.	%	EXC.	PH	N	MAG
03040202090																						
PD-080	P	LYNCHES RVR	FW		57	0	0	0	*	172		D	170	-0.057		57	3	5	5.7	*	172	
PD-071	P	LYNCHES RVR	FW		60	1	2	4.5	*	96		*	94			60	8	13	5.709	I	98	0.049
PD-112	S	COUSAR BRANCH	FW		18	0	0	0	I	76	0.080	D	72	0.167		18	3	17	5.737	D	73	-0.167
PD-364	P/BIO	LYNCHES RVR	FW		59	1	2	4.7	*	56		D	56	-0.117		59	3	5	5.67	*	64	
PD-319	P	LYNCHES RVR	FW		60	1	2	4.3	*	89		*	88			60	2	3	5.915	*	89	
PD-093	P	LYNCHES RVR	FW		58	1	2	3.2	*	53		*	53			58	2	3	5.8	*	53	
03040202100																						
PD-229	S	NEWMAN SWAMP	FW*		17	16	94	1.3	D	74	-0.400	*	71			17	0	0	0	D	72	-0.025
PD-072	S	SPARROW SWAMP	FW*		30	23	77	2.38	*	86		D	84	-0.057		30	0	0	0	*	84	
PD-332	P	SPARROW SWAMP	FW*		59	5	8	2.86	*	170		D	170	-0.033		59	0	0	0	I	169	0.015
03040202110																						
PD-345	PD	LAKE SWAMP	FW*		17	3	18	2.533								17	0	0	0			
03040202120																						
PD-041	P	LYNCHES RVR	FW		59	1	2	4.5	D	173	-0.033	D	169	-0.025		59	5	8	5.846	D	171	-0.013
PD-281	P	LYNCHES RVR	FW		58	0	0	0	D	172	-0.028	D	168	-0.013		58	4	7	5.775	*	171	
03040202130																						
PD-168	S	BIG SWAMP	FW*		18	15	83	1.537	D	76	-0.119	*	75			18	0	0	0	*	74	
PD-169	P*	BIG SWAMP	FW*		35	23	66	1.7	*	94		D	93	-0.100		35	0	0	0	I	92	0.031
03040202140																						
PD-346	PD	CAMP BRANCH	FW		18	15	83	1.8								18	8	44	5.651			
03040202150																						
PD-085	S	LAKE SWAMP	FW*		17	15	88	2.09	I	74	0.095	D	74	-0.168		18	0	0	0	*	73	
PD-086A	P*	LAKE SWAMP	FW*		34	29	85	1.719	*	94		*	94			35	0	0	0	*	93	
03040202160																						
PD-314	PD	SINGLETON SWAMP	FW		18	16	89	2.447								18	8	44	5.791			
03040202170																						
PD-087	P*	LAKE SWAMP	FW*		36	22	61	2.482	*	96		D	96	-0.057		37	0	0	0	I	95	0.030

Water Quality Summary - Lynches River Basin

STATION			FIRST	TRENDS (92-98)			TRENDS (84-98)											
NUMBER	TYPE	WATERBODY NAME	CLASS	TP	N	MAG	TP	N	MAG	TN	N	MAG	TURB	N	MAG	TSS	N	MAG
03040202090																		
PD-080	P	LYNCHES RVR	FW	*	71		D	160	-0.002	*	157		*	167				
PD-071	P	LYNCHES RVR	FW	*	71		*	91		*	91		I	98	0.463			
PD-112	S	COUSAR BRANCH	FW				D	71	-0.117				D	74	-0.309			
PD-364	P/BIO	LYNCHES RVR	FW				D	52	-0.003	D	50	-0.058	*	56				
PD-319	P	LYNCHES RVR	FW	*	69		D	82	0.000	*	69		I	82	0.518			
PD-093	P	LYNCHES RVR	FW	*	45		*	45		D	45	-0.062	*	53				
03040202100																		
PD-229	S	NEWMAN SWAMP	FW*				*	71					I	72	0.458			
PD-072	S	SPARROW SWAMP	FW*	*	34		D	82	-0.003				*	85				
PD-332	P	SPARROW SWAMP	FW*	*	65		D	156	0.000	D	158	-0.021	I	168	0.200			
03040202110																		
PD-345	PD	LAKE SWAMP	FW*															
03040202120																		
PD-041	P	LYNCHES RVR	FW	*	69		D	162	-0.001	D	160	-0.010	I	170	0.367			
PD-281	P	LYNCHES RVR	FW	*	73		D	167	-0.001	D	162	-0.008	I	170	0.333			
03040202130																		
PD-168	S	BIG SWAMP	FW*				*	69					*	75				
PD-169	P*	BIG SWAMP	FW*	*	42		D	89	-0.003				*	93				
03040202140																		
PD-346	PD	CAMP BRANCH	FW															
03040202150																		
PD-085	S	LAKE SWAMP	FW*				D	70	-0.009				D	74	-0.320			
PD-086A	P*	LAKE SWAMP	FW*	*	42		*	88					I	94	0.206			
03040202160																		
PD-314	PD	SINGLETON SWAMP	FW															
03040202170																		
PD-087	P*	LAKE SWAMP	FW*	*	44		*	90					I	96	0.294			

Water Quality Summary - Lynches River Basin

STATION			FIRST	GEO	BACT	BACT	BACT	MEAN	TRENDS (84-98)			NH3	NH3	CD	CD	CD	CD
NUMBER	TYPE	WATERBODY NAME	CLASS	MEAN	N	EXC.	%	EXC.	BACT	N	MAG	N	EXC.	N	EXC.	MED.	%
03040202090																	
PD-080	P	LYNCHES RVR	FW	89.7201	57	4	7	2425	*	170		53	0	19	0	DL	0
PD-071	P	LYNCHES RVR	FW	61.0989	59	2	3	560	D	97	-4.542	57	0	20	0	DL	0
PD-112	S	COUSAR BRANCH	FW	103.646	18	4	22	672	D	112	-20.000						
PD-364	P/BIO	LYNCHES RVR	FW	76.0883	58	2	3	410	*	55		52	0	19	0	DL	0
PD-319	P	LYNCHES RVR	FW	77.6814	60	1	2	420	*	88		55	0	20	0	DL	0
PD-093	P	LYNCHES RVR	FW	83.5873	58	3	5	546	*	53		51	0	19	0	DL	0
03040202100																	
PD-229	S	NEWMAN SWAMP	FW*	89.0203	17	0	0	0	*	74							
PD-072	S	SPARROW SWAMP	FW*	88.1548	30	3	3	530	*	86		2	0				
PD-332	P	SPARROW SWAMP	FW*	103.065	59	1	2	600	*	168		54	0	20	0	DL	0
03040202110																	
PD-345	PD	LAKE SWAMP	FW*	98.2423	17	0	0	0				17	0	5	0	DL	0
03040202120																	
PD-041	P	LYNCHES RVR	FW	78.4132	58	3	5	493	I	171	1.500	57	0	20	0	DL	0
PD-281	P	LYNCHES RVR	FW	70.5039	58	0	0	0	*	174		52	0	19	0	DL	0
03040202130																	
PD-168	S	BIG SWAMP	FW*	96.0011	18	1	6	600	*	76							
PD-169	P*	BIG SWAMP	FW*	170.852	35	6	17	618	I	94	6.462	17	0	5	0	DL	0
03040202140																	
PD-346	PD	CAMP BRANCH	FW	79.8845	18	1	6	2000				17	0	5	0	DL	0
03040202150																	
PD-085	S	LAKE SWAMP	FW*	104.433	18	0	0	0	*	74							
PD-086A	P*	LAKE SWAMP	FW*	142.069	35	4	11	642	*	94		18	0	5	0	DL	0
03040202160																	
PD-314	PD	SINGLETON SWAMP	FW	110.47	18	2	11	625				16	0	5	0	DL	0
03040202170																	
PD-087	P*	LAKE SWAMP	FW*	80.931	36	0	0	0	*	94		18	0	5	0	DL	0

Water Quality Summary - Lynches River Basin

STATION			FIRST	CR	CR	CR	CR	CU	CU	CU	PB	PB	PB	PB	HG	HG	HG	HG
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	MED.	%	N	EXC.	%	N	EXC.	MED.	%	N	EXC.	MED.	%
03040202090																		
PD-080	P	LYNCHES RVR	FW	19	0	DL	0	19	1	5	19	0	DL	0	19	0	DL	0
PD-071	P	LYNCHES RVR	FW	20	1	DL	5	20	1	5	20	0	DL	0	19	0	DL	0
PD-112	S	COUSAR BRANCH	FW															
PD-364	P/BIO	LYNCHES RVR	FW	19	0	DL	0	19	0	0	19	0	DL	0	19	0	DL	0
PD-319	P	LYNCHES RVR	FW	20	0	DL	0	20	2	10	20	0	DL	0	20	1	DL	5
PD-093	P	LYNCHES RVR	FW	19	0	DL	0	19	2	11	19	0	DL	0	18	0	DL	0
03040202100																		
PD-229	S	NEWMAN SWAMP	FW*															
PD-072	S	SPARROW SWAMP	FW*															
PD-332	P	SPARROW SWAMP	FW*	20	0	DL	0	20	0	0	20	0	DL	0	20	0	DL	0
03040202110																		
PD-345	PD	LAKE SWAMP	FW*	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040202120																		
PD-041	P	LYNCHES RVR	FW	20	0	DL	0	20	0	0	20	0	DL	0	19	0	DL	0
PD-281	P	LYNCHES RVR	FW	19	0	DL	0	19	0	0	19	0	DL	0	19	0	DL	0
03040202130																		
PD-168	S	BIG SWAMP	FW*															
PD-169	P*	BIG SWAMP	FW*	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040202140																		
PD-346	PD	CAMP BRANCH	FW	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040202150																		
PD-085	S	LAKE SWAMP	FW*															
PD-086A	P*	LAKE SWAMP	FW*	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040202160																		
PD-314	PD	SINGLETON SWAMP	FW	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040202170																		
PD-087	P*	LAKE SWAMP	FW*	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0

Water Quality Summary - Lynches River Basin

STATION NUMBER	TYPE	WATERBODY NAME	FIRST CLASS		NI N	NI EXC.	NI %		ZN N	ZN EXC.	ZN %
03040202090											
PD-080	P	LYNCHES RVR	FW		19	0	0		19	2	11
PD-071	P	LYNCHES RVR	FW		20	0	0		20	1	5
PD-112	S	COUSAR BRANCH	FW								
PD-364	P/BIO	LYNCHES RVR	FW		19	0	0		19	1	5
PD-319	P	LYNCHES RVR	FW		20	0	0		20	0	0
PD-093	P	LYNCHES RVR	FW		19	0	0		19	1	5
03040202100											
PD-229	S	NEWMAN SWAMP	FW*								
PD-072	S	SPARROW SWAMP	FW*								
PD-332	P	SPARROW SWAMP	FW*		20	0	0		20	0	0
03040202110											
PD-345	PD	LAKE SWAMP	FW*		5	0	0		5	1	20
03040202120											
PD-041	P	LYNCHES RVR	FW		20	0	0		20	1	5
PD-281	P	LYNCHES RVR	FW		19	0	0		19	0	0
03040202130											
PD-168	S	BIG SWAMP	FW*								
PD-169	P*	BIG SWAMP	FW*		5	0	0		5	0	0
03040202140											
PD-346	PD	CAMP BRANCH	FW		5	0	0		5	1	20
03040202150											
PD-085	S	LAKE SWAMP	FW*								
PD-086A	P*	LAKE SWAMP	FW*		5	0	0		5	0	0
03040202160											
PD-314	PD	SINGLETON SWAMP	FW		5	0	0		5	0	0
03040202170											
PD-087	P*	LAKE SWAMP	FW*		5	0	0		5	0	0

APPENDIX B.

Black River Basin

Ambient Water Quality Monitoring Site Descriptions

Station #	Type	Class	Description
03040205-010			
PD-353	S	FW*	BLACK RIVER AT S-43-57
03040205-020			
PD-354	W	FW	CANAL TO ATKINS DRAINAGE CANAL AT SC 527 (.75 MI N OF US 76)
03040205-030			
PD-355	W	FW	SCAPE ORE SWAMP AT S-31-108
03040205-040			
PD-356	W	FW	MECHANICSVILLE SWAMP AT S-31-500
03040205-050			
PD-201	W	FW*	SCAPE ORE SWAMP AT S-43-41
03040205-060			
PD-357	W	FW*	ROCKY BLUFF SWAMP AT US 76
03040205-070			
PD-116	S	FW*	BLACK RIVER AT S-14-40 E OF MANNING
03040205-080			
PD-239	S	FW	NASTY BRANCH AT S-43-251 7.5 MILES SW OF SUMTER
PD-039	S	FW*	GREEN SWAMP AT S-43-33
PD-091	P	FW*	POCOTALIGO RIVER AT US 15 3.5 MILES S SUMTER
PD-098	S	FW*	TURKEY CK AT LIBERTY ST IN SUMTER BY SANTEE PRINT WORKS
PD-040	W	FW*	TURKEY CREEK AT US 521
03040205-090			
PD-202	P	FW*	POCOTALIGO RIVER AT S-43-32 9 MILES SSE OF SUMTER
PD-115	S	FW*	POCOTALIGO RIVER AT THIRD BRIDGE N OF MANNING ON US 301
PD-043	P	FW*	POCOTALIGO RIVER AT S-14-50 9.5 MILES NE MANNING
03040205-100			
PD-227	P	FW*	BLACK RIVER AT S-45-35 8.6 MILES NW OF KINGSTREE
03040205-110			
PD-203	S	FW*	PUDDING SWAMP AT SC 527 8.1 MILES NW OF KINGSTREE
03040205-130			
PD-358	W	FW	KINGSTREE SWAMP CANAL AT SC 527
03040205-140			
PD-044	S	FW*	BLACK RIVER AT US 52 AT KINGSTREE
PD-045	S	FW*	BLACK RIVER AT SC 377 AT BRYAN'S CROSS ROADS
(PD-359)	W	FW*	BLACK RIVER AT S-45-30
03040205-150			
PD-359	W	FW*	BLACK RIVER AT S-45-30
PD-170	P	FW*	BLACK RIVER AT SC 51 11.6 MILES NE OF ANDREWS

03040205-170

PD-360	W	FW	BLACK MINGO CREEK AT S-45-121
PD-361	S	FW	BLACK MINGO CREEK AT COWHEAD LANDING OFF SC 51

03040205-180

PD-325	P	SA	BLACK RIVER AT S-22-489 4 MILES NE GEORGETOWN

Water Quality Data

Spreadsheet Legend

Station Information:

STATION NUMBER	Station ID
TYPE	SCDHEC station type code
	P = Primary station, sampled monthly all year round
	S = Secondary station, sampled monthly May - October
	P* = Secondary station upgraded to primary station parameter coverage and sampling frequency for basin study
	W = Special watershed station added for the Pee Dee River Basin study
	BIO = Indicates macroinvertebrate community data assessed

WATERBODY NAME Stream or Lake Name

CLASS Stream classification at the point where monitoring station is located

Parameter Abbreviations and Parameter Measurement Units:

DO	Dissolved Oxygen (mg/l)	NH3	Ammonia (mg/l)
BOD	Five-Day Biochemical Oxygen Demand (mg/l)	CD	Cadmium (ug/l)
pH	pH (SU)	CR	Chromium (ug/l)
TP	Total Phosphorus (mg/l)	CU	Copper (ug/l)
TN	Total Nitrogen (mg/l)	PB	Lead (ug/l)
TURB	Turbidity (NTU)	HG	Mercury (ug/l)
TSS	Total Suspended Solids (mg/l)	NI	Nickel (ug/l)
BACT	Fecal Coliform Bacteria (#/100 ml)	ZN	Zinc (ug/l)

Statistical Abbreviations:

N For standards compliance, number of surface samples collected between January, 1994 and December, 1998. For trends, number of surface samples collected between January, 1984 and December, 1998. For total phosphorus, an additional trend period of January, 1992 to December, 1998 is also reported.

EXC. Number of samples contravening the appropriate standard

% Percentage of samples contravening the appropriate standard

MEAN EXC. Mean of samples which contravened the applied standard

MED For heavy metals with a human health criterion, this is the median of all surface samples between January, 1994 and December, 1998. DL indicates that the median was the detection limit.

MAG Magnitude of any statistically significant trend, average change per year, expressed in parameter measurement units

GEO MEAN Geometric mean of fecal coliform bacteria samples collected between January, 1994 and December, 1998

Key to Trends:

D	Statistically significant decreasing trend in parameter concentration
I	Statistically significant increasing trend in parameter concentration
*	No statistically significant trend
Blank	Insufficient data to test for long term trends

Water Quality Summary - Black River Basin

STATION			FIRST	DO	DO	DO	MEAN	TRENDS (84-98)						pH	pH	pH	MEAN	TRENDS (84-98)		
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	DO	N	MAG	BOD	N	MAG	N	EXC.	%	EXC.	PH	N	MAG
03040205010																				
PD-353	P*	BLACK RVR	FW*	36	15	42	2.647	*	35		*	35		36	0	0	0	*	35	
03040205020																				
PD-354	PD	UNNAMED DRAINAGE CANA	FW	18	1	6	3.5							18	1	6	5.8			
03040205060																				
PD-357	PD	ROCKY BLUFF SWAMP	FW*	18	8	44	2.025							18	0	0	0			
03040205030																				
PD-355	PD	SCAPE ORE SWAMP	FW	18	4	22	3.912							18	11	66	5.302			
03040205040																				
PD-356	PD	MECHANICSVILLE SWAMP	FW	17	1	6	3.9							17	3	18	5.827			
03040205050																				
PD-201	PD	ROCKY BLUFF SWAMP	FW*	18	7	39	2.114	*	58		*	58		18	0	0	0	*	58	
03040205070																				
PD-116	P*	BLACK RVR	FW*	35	6	17	2.075	D	95	-0.075	*	95		34	0	0	0	I	94	0.033
03040205080																				
PD-239	S	NASTY BRANCH	FW	17	15	88	3.433	D	73	-0.183	*	72		17	3	18	5.623	*	74	
PD-039	S	GREEN SWAMP	FW*	18	10	56	2.45	D	72	-0.105	*	73		18	0	0	0	*	74	
PD-091	P	POCOTALIGO RVR	FW*	59	33	56	2.33	D	173	-0.117	D	173	-0.064	60	0	0	0	*	174	
PD-098	S	TURKEY CK	FW*	18	2	11	3.4	*	75		*	76		18	0	0	0	*	75	
PD-040	PD	TURKEY CK	FW*	18	7	39	3.071							18	0	0	0			
03040205090																				
PD-202	P	POCOTALIGO RVR	FW*	60	40	67	1.717	I	179	0.058	D	174	-0.044	60	0	0	0	I	178	0.033
PD-115	S	POCOTALIGO RVR	FW*	18	11	61	3.027	*	74		D	73	-0.033	18	0	0	0	I	74	0.025
PD-043	P	POCOTALIGO RVR	FW*	59	3	5	3.15	*	174		D	173	-0.025	58	0	0	0	I	172	0.031
03040205100																				
PD-227	P	BLACK RVR	FW*	56	2	4	3.85	*	172		D	172	-0.033	56	0	0	0	I	171	0.038
03040205110																				
PD-203	P*	PUDDING SWAMP	FW*	34	7	21	2.5	*	94		D	94	-0.038	34	0	0	0	*	94	
03040205130																				
PD-358	PD	KINGSTREE SWAMP CANAL	FW	16	10	63	3.75							16	2	13	5.835			
03040205140																				
PD-044	P*	BLACK RVR	FW*	34	2	6	3.65	*	94		*	94		34	0	0	0	*	94	
PD-045	S	BLACK RVR	FW*	29	0	0	0	*	87		*	87		29	0	0	0	I	87	0.027
03040205150																				
PD-359	PD	BLACK RVR	FW*	17	0	0	0							17	0	0	0			
PD-170	P	BLACK RVR	FW*	59	5	8	2.84	*	173		D	170	-0.040	59	0	0	0	I	173	0.026
03040205170																				
PD-360	PD	BLACK MINGO CK	FW	18	10	56	1.935							18	1	6	5.6			
PD-361	P*	BLACK MINGO CK	FW	35	23	66	3.578	*	32		D	32	-0.100	35	5	14	5.776	*	32	

Water Quality Summary - Black River Basin

STATION			FIRST		DO	DO	DO	MEAN	TRENDS (84-98)							pH	pH	pH	MEAN	TRENDS (84-98)		
NUMBER	TYPE	WATERBODY NAME	CLASS		N	EXC.	%	EXC.	DO	N	MAG	BOD	N	MAG		N	EXC.	%	EXC.	PH	N	MAG
03040205180																						
PD-325	P	BLACK RVR	SA		61	14	23	4.057	*	177		D	170	-0.039		61	13	21	6.205	*	177	

Water Quality Summary - Black River Basin

STATION			FIRST	TRENDS (92-98)			TRENDS (84-98)											
NUMBER	TYPE	WATERBODY NAME	CLASS	TP	N	MAG	TP	N	MAG	TN	N	MAG	TURB	N	MAG	TSS	N	MAG
03040205010																		
PD-353	P*	BLACK RVR	FW*	*	32		*	32					*	35				
03040205020																		
PD-354	PD	UNNAMED DRAINAGE CANA	FW															
03040205060																		
PD-357	PD	ROCKY BLUFF SWAMP	FW*															
03040205030																		
PD-355	PD	SCAPE ORE SWAMP	FW															
03040205040																		
PD-356	PD	MECHANICSVILLE SWAMP	FW															
03040205050																		
PD-201	PD	ROCKY BLUFF SWAMP	FW*				*	57					*	58				
03040205070																		
PD-116	P*	BLACK RVR	FW*	*	43		*	91					*	94				
03040205080																		
PD-239	S	NASTY BRANCH	FW				*	71					*	73				
PD-039	S	GREEN SWAMP	FW*				D	70	-0.001				I	74	0.100			
PD-091	P	POCOTALIGO RVR	FW*	*	71		D	163	-0.003	D	162	-0.068	*	171				
PD-098	S	TURKEY CK	FW*				D	71	-0.029				D	75	-0.190			
PD-040	PD	TURKEY CK	FW*															
03040205090																		
PD-202	P	POCOTALIGO RVR	FW*	I	73	0.272	*	163		*	160		*	174		*	157	
PD-115	S	POCOTALIGO RVR	FW*				*	71					*	74				
PD-043	P	POCOTALIGO RVR	FW*	*	75		*	169		D	166	-0.009	I	174	0.038			
03040205100																		
PD-227	P	BLACK RVR	FW*	*	73		*	168		D	166	-0.014	*	173				
03040205110																		
PD-203	P*	PUDDING SWAMP	FW*	*	46		*	93					*	95				
03040205130																		
PD-358	PD	KINGSTREE SWAMP CANAL	FW															
03040205140																		
PD-044	P*	BLACK RVR	FW*	*	46		*	93					*	93				
PD-045	S	BLACK RVR	FW*	*	37		*	85					I	87	0.075			
03040205150																		
PD-359	PD	BLACK RVR	FW*															
PD-170	P	BLACK RVR	FW*	*	70		I	164	0.001	D	162	-0.015	I	171	0.100			
03040205170																		
PD-360	PD	BLACK MINGO CK	FW															
PD-361	P*	BLACK MINGO CK	FW										*	32				

Water Quality Summary - Black River Basin

STATION			FIRST		TRENDS (92-98)				TRENDS (84-98)											
NUMBER	TYPE	WATERBODY NAME	CLASS		TP	N	MAG		TP	N	MAG	TN	N	MAG	TURB	N	MAG	TSS	N	MAG
03040205180																				
PD-325	P	BLACK RVR	SA		*	71			*	161		D	158	-0.025	*	170				

Water Quality Summary - Black River Basin

STATION NUMBER	TYPE	WATERBODY NAME	FIRST CLASS	GEO MEAN	BACT N	BACT EXC.	BACT %	MEAN EXC.	TRENDS (84-98) BACT	N	MAG	NH3 N	NH3 EXC.	CD N	CD EXC.	CD MED.	CD %
03040205010																	
PD-353	P*	BLACK RVR	FW*	197.302	36	7	19	591	*	35		18	0	5	0	DL	0
03040205020																	
PD-354	PD	UNNAMED DRAINAGE CANA	FW	83.9378	18	1	6	420				16	0	4	0	DL	0
03040205060																	
PD-357	PD	ROCKY BLUFF SWAMP	FW*	102.258	18	1	6	500				18	0	5	0	DL	0
03040205030																	
PD-355	PD	SCAPE ORE SWAMP	FW	172.146	15	3	20	626				16	0	5	0	DL	0
03040205040																	
PD-356	PD	MECHANICSVILLE SWAMP	FW	106.586	16	3	19	640				16	0	5	0	DL	0
03040205050																	
PD-201	PD	ROCKY BLUFF SWAMP	FW*	77.9723	18	0	0	0	*	56		17	0	5	0	DL	0
03040205070																	
PD-116	P*	BLACK RVR	FW*	93.518	35	3	9	720	I	95	3.675	16	0	5	0	DL	0
03040205080																	
PD-239	S	NASTY BRANCH	FW	166.212	17	2	12	550	*	72							
PD-039	S	GREEN SWAMP	FW*	172.214	18	1	6	3000	*	74							
PD-091	P	POCOTALIGO RVR	FW*	46.6881	60	0	0	0	D	173	-2.000	55	0	20	0	DL	0
PD-098	S	TURKEY CK	FW*	1265.82	18	15	83	3214	D	74	-288.000						
PD-040	PD	TURKEY CK	FW*	266.957	18	9	50	972				17	0	5	0	DL	0
03040205090																	
PD-202	P	POCOTALIGO RVR	FW*	43.8233	60	0	0	0	D	174	-1.200	55	0	20	0	DL	0
PD-115	S	POCOTALIGO RVR	FW*	144.648	18	1	6	690	*	73							
PD-043	P	POCOTALIGO RVR	FW*	76.3678	59	2	3	525	D	174	-2.000	55	0	18	0	DL	0
03040205100																	
PD-227	P	BLACK RVR	FW*	54.6963	56	0	0	0	D	171	-3.143	52	0	17	0	DL	0
03040205110																	
PD-203	P*	PUDDING SWAMP	FW*	137.024	35	4	11	752	*	95		16	0	5	0	DL	0
03040205130																	
PD-358	PD	KINGSTREE SWAMP CANAL	FW	78.7271	16	0	0	0				16	0	5	0	DL	0
03040205140																	
PD-044	P*	BLACK RVR	FW*	81.4727	34	4	15	602	I	94	3.381	17	0	5	0	DL	0
PD-045	S	BLACK RVR	FW*	71.0688	29	2	7	820	*	87		5	0	2	0	DL	0
03040205150																	
PD-359	PD	BLACK RVR	FW*	44.8128	17	0	0	0				15	0	5	0	DL	0
PD-170	P	BLACK RVR	FW*	41.0502	59	1	2	1000	I	173	0.845	56	0	20	0	DL	0
03040205170																	
PD-360	PD	BLACK MINGO CK	FW	100.885	18	0	0	0				17	0	5	0	DL	0
PD-361	P*	BLACK MINGO CK	FW	59.1411	34	0	0	0	*	31		16	0	5	0	DL	0

Water Quality Summary - Black River Basin

STATION			FIRST		GEO	BACT	BACT	BACT	MEAN	TRENDS (84-98)				NH3	NH3		CD	CD	CD	CD
NUMBER	TYPE	WATERBODY NAME	CLASS		MEAN	N	EXC.	%	EXC.	BACT	N	MAG		N	EXC.		N	EXC.	MED.	%
03040205180																				
PD-325	P	BLACK RVR	SA		45.5169	59	0	0	0	*	172			56	0		19	0	DL	0

Water Quality Summary - Black River Basin

STATION			FIRST	CR	CR	CR	CR	CU	CU	CU	PB	PB	PB	PB	HG	HG	HG	HG
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	MED.	%	N	EXC.	%	N	EXC.	MED.	%	N	EXC.	MED.	%
03040205010																		
PD-353	P*	BLACK RVR	FW*	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040205020																		
PD-354	PD	UNNAMED DRAINAGE CANA	FW	4	0	DL	0	4	0	0	4	0	DL	0	4	0	DL	0
03040205060																		
PD-357	PD	ROCKY BLUFF SWAMP	FW*	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040205030																		
PD-355	PD	SCAPE ORE SWAMP	FW	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040205040																		
PD-356	PD	MECHANICSVILLE SWAMP	FW	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040205050																		
PD-201	PD	ROCKY BLUFF SWAMP	FW*	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040205070																		
PD-116	P*	BLACK RVR	FW*	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040205080																		
PD-239	S	NASTY BRANCH	FW															
PD-039	S	GREEN SWAMP	FW*															
PD-091	P	POCOTALIGO RVR	FW*	20	0	DL	0	20	1	5	20	0	DL	0	20	0	DL	0
PD-098	S	TURKEY CK	FW*															
PD-040	PD	TURKEY CK	FW*	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040205090																		
PD-202	P	POCOTALIGO RVR	FW*	20	0	DL	0	20	1	5	20	0	DL	0	20	0	DL	0
PD-115	S	POCOTALIGO RVR	FW*															
PD-043	P	POCOTALIGO RVR	FW*	18	0	DL	0	18	0	0	18	0	DL	0	18	0	DL	0
03040205100																		
PD-227	P	BLACK RVR	FW*	17	0	DL	0	17	0	0	17	0	DL	0	17	0	DL	0
03040205110																		
PD-203	P*	PUDDING SWAMP	FW*	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040205130																		
PD-358	PD	KINGSTREE SWAMP CANAL	FW	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040205140																		
PD-044	P*	BLACK RVR	FW*	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
PD-045	S	BLACK RVR	FW*	2	0	DL	0	2	0	0	2	0	DL	0	2	0	DL	0
03040205150																		
PD-359	PD	BLACK RVR	FW*	5	0	DL	0	5	1	20	5	0	DL	0	5	0	DL	0
PD-170	P	BLACK RVR	FW*	20	1	DL	5	20	1	5	20	0	DL	0	20	0	DL	0
03040205170																		
PD-360	PD	BLACK MINGO CK	FW	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
PD-361	P*	BLACK MINGO CK	FW	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0

Water Quality Summary - Black River Basin

STATION			FIRST		CR	CR	CR	CR		CU	CU	CU		PB	PB	PB	PB		HG	HG	HG	HG
NUMBER	TYPE	WATERBODY NAME	CLASS		N	EXC.	MED.	%		N	EXC.	%		N	EXC.	MED.	%		N	EXC.	MED.	%
03040205180																						
PD-325	P	BLACK RVR	SA		19	0	DL	0		19	0	0		19	0	DL	0		19	0	DL	0

Water Quality Summary - Black River Basin

STATION NUMBER	TYPE	WATERBODY NAME	FIRST CLASS		NI N	NI EXC.	NI %		ZN N	ZN EXC.	ZN %
03040205010											
PD-353	P*	BLACK RVR	FW*		5	0	0		5	0	0
03040205020											
PD-354	PD	UNNAMED DRAINAGE CANA	FW		4	0	0		4	0	0
03040205060											
PD-357	PD	ROCKY BLUFF SWAMP	FW*		5	0	0		5	0	0
03040205030											
PD-355	PD	SCAPE ORE SWAMP	FW		5	0	0		5	0	0
03040205040											
PD-356	PD	MECHANICSVILLE SWAMP	FW		5	0	0		5	0	0
03040205050											
PD-201	PD	ROCKY BLUFF SWAMP	FW*		5	0	0		5	0	0
03040205070											
PD-116	P*	BLACK RVR	FW*		5	0	0		5	0	0
03040205080											
PD-239	S	NASTY BRANCH	FW								
PD-039	S	GREEN SWAMP	FW*								
PD-091	P	POCOTALIGO RVR	FW*		20	0	0		20	0	0
PD-098	S	TURKEY CK	FW*								
PD-040	PD	TURKEY CK	FW*		5	0	0		5	1	20
03040205090											
PD-202	P	POCOTALIGO RVR	FW*		20	0	0		20	0	0
PD-115	S	POCOTALIGO RVR	FW*								
PD-043	P	POCOTALIGO RVR	FW*		18	0	0		18	1	6
03040205100											
PD-227	P	BLACK RVR	FW*		17	0	0		17	0	0
03040205110											
PD-203	P*	PUDDING SWAMP	FW*		5	0	0		5	0	0
03040205130											
PD-358	PD	KINGSTREE SWAMP CANAL	FW		5	0	0		5	0	0
03040205140											
PD-044	P*	BLACK RVR	FW*		5	0	0		5	0	0
PD-045	S	BLACK RVR	FW*		2	0	0		2	0	0
03040205150											
PD-359	PD	BLACK RVR	FW*		5	0	0		5	0	0
PD-170	P	BLACK RVR	FW*		20	0	0		20	2	10
03040205170											
PD-360	PD	BLACK MINGO CK	FW		5	0	0		5	0	0
PD-361	P*	BLACK MINGO CK	FW		5	0	0		5	1	20

Water Quality Summary - Black River Basin

STATION NUMBER	TYPE	WATERBODY NAME	FIRST CLASS		NI N	NI EXC.	NI %		ZN N	ZN EXC.	ZN %
03040205180											
PD-325	P	BLACK RVR	SA		19	0	0		19	1	5

APPENDIX C.

Pee Dee River Basin

Ambient Water Quality Monitoring Site Descriptions

Station #	Type	Class	Description
03040201-030			
PD-339	W	FW	WESTFIELD CREEK AT US 52
PD-641	BIO	FW	WESTFIELD CREEK AT SR 62
03040201-040			
PD-191	W	FW	WHITES CREEK AT US 1
03040201-050			
PD-012	P	FW	PEE DEE RIVER AT US 1 NE CHERAW
PD-015	P	FW	PEE DEE RIVER AT US 15 & 401
PD-028	P	FW	PEE DEE RIVER AT SC 34 11 MILES NE DARLINGTON
03040201-060			
PD-246	S	FW	THOMPSON CREEK AT S-13-243 0.8 MILES NE OF CHESTERFIELD
PD-673	BIO	FW	THOMPSON CREEK AT SC 109
PD-247	S	FW	THOMPSON CREEK AT SC 9 1.5 MILES ESE OF CHESTERFIELD
PD-671	BIO	FW	DEEP CREEK AT SR 47
PD-338	S	FW	THOMPSON CREEK AT S-13-148 S OF CHERAW
PD-677	BIO	FW	NORTH PRONG CREEK AT SC 102
PD-340	W	FW	JUNIPER CREEK AT S-13-494
03040201-070			
PD-107	S	FW	CROOKED CREEK AT SC 9 IN BENNETTSVILLE
PD-014	S	FW	CROOKED CREEK AT S-35-43
PD-063	W	FW	CROOKED CREEK AT SC 912
03040201-080			
PD-675	BIO	FW	CEDAR CREEK AT SR 171
PD-151	W	FW	CEDAR CREEK AT US 52
03040201-090			
PD-336	S	FW	HAGINS PRONG AT SC ROUTE 381
PD-341	W	FW	THREE CREEKS AT SC 381 AT BLENHEIM
03040201-100			
PD-674	BIO	FW	BLACK CREEK AT SR 683
PD-004	P	FW	BLACK CREEK AT S-13-43 1 MILES NE NICEY GROVE
PD-676	BIO	FW	LITTLE BLACK CREEK AT ZILLYSTEEN ROAD
PD-670	BIO	FW*	BLACK CREEK AT SR 33
PD-613	BIO	FW	SKIPPER CREEK AT SC 145
PD-251	W	FW*	BLACK CREEK AT US 1
PD-327	P	FW*	LAKE ROBINSON AT S-13-346 5 MILES E MCBEE
03040201-110			
PD-159	S	FW*	BLACK CREEK AT S-16-23 4.7 MILES NW OF HARTSVILLE
PD-268	S	FW*	SONOVISTA CLUB HARTSVILLE OFF DOCK OF PRESTWOOD LAKE
PD-081	S	FW*	PRESTWOOD LAKE AT US 15
PD-258	S	FW	SNAKE BRANCH AT RAILROAD AVENUE IN HARTSVILLE
PD-137	S	FW	SNAKE BRANCH AT WOODMILL STREET IN HARTSVILLE
PD-021	P	FW*	BLACK CREEK AT S-16-18 1 MILES NNE HARTSVILLE
PD-330	S	FW*	CREEK AT HIGHWAY 15 BYPASS

PD-023	P	FW*	BLACK CREEK AT S-16-13 5.5 MILES NE HARTSVILLE
PD-025	P	FW	BLACK CREEK AT S-16-133 2.25 MILES NE OF DARLINGTON
PD-141	S	FW	TILE DISCHARGING TO DITCH ACROSS RD AT DARLINGTON WWTP
PD-027	P	FW	BLACK CREEK AT S-16-35 5.5 MILES SE DARLINGTON
PD-103	S	FW	HIGH HILL CREEK AT US 52 ON COUNTY LINE
PD-078	W/BIO	FW	BLACK CREEK AT SC 327
03040201-120			
PD-337	P	FW	PEE DEE RIVER AT US 301/76
03040201-130			
PD-255	S	FW*	JEFFRIES CREEK AT SC 340 6.8 MILES SSW OF DARLINGTON
PD-256	S	FW*	JEFFRIES CREEK AT S-21-112 4.8 MILES W OF FLORENCE
PD-065	P	FW	GULLEY BRANCH AT S-21-13, TIMROD PARK
PD-230	S	FW*	MIDDLE SWAMP AT SC 51 3.5 MILES SSE OF FLORENCE
PD-035	S	FW*	JEFFRIES CREEK AT SC 327 AT CLAUSSEN
PD-231	S	FW*	JEFFRIES CK AT UNNUMBERED ROAD 3.3 MILES ESE OF CLAUSSEN
PD-167	W	FW	WILLOW CREEK AT S-21-57
03040201-140			
PD-076	P	FW	PEE DEE RIVER AT US 378
03040201-150			
PD-320	S	FW*	SMITH SWAMP AT S-34-19 1 MILES E OF MARION
PD-187	P	FW*	SMITH SWAMP AT US 501 1.9 MILES SSE OF MARION
PD-097	S	FW*	CATFISH CREEK AT S-34-34 6 MILES SW OF MARION
03040201-160			
PD-060	W	FW	PEE DEE RIVER AT PETERS FIELD LANDING OFF S-22-36
03040201-170			
PD-061	P	FW	PEE DEE RIVER AT US 701 2.75 MILES NE YAUHANNAH
MD-080	P	SB	WINYAH BAY @ MARKER 92 AT MOUTH OF PEE DEE AND WACCAMAW RIVERS
03040203-180			
PD-038	P	FW	LUMBER RIVER AT US 76 AT NICHOLS
03040203-210			
PD-347	W	FW*	ASHPOLE SWAMP AT PRIVATE ROAD
03040204-010			
PD-306	S	FW	PANTHER CREEK AT US 15 OUTSIDE MCCOLL
PD-016	S	FW	PANTHER CREEK AT S-35-27
PD-017A	S	FW	MCLAURINS MILL POND SC 381
PD-062	S	FW	GUM SWAMP
PD-365	W	FW	LITTLE PEE DEE RIVER AT S-17-363
03040204-030			
PD-069	P	FW	LITTLE PEE DEE RIVER AT SC 57 11.5 MILES NW DILLON
PD-029E	S	FW	LITTLE PEE DEE RIVER AT S-17-23
PD-055	S	FW	LITTLE PEE DEE RIVER AT SC 9
PD-030	S	FW*	MAPLE SWAMP AT SC 57
PD-030A	S	FW	LITTLE PEE DEE RIVER BELOW JUNCTION WITH MAPLE SWAMP
PD-348	W	FW	LITTLE PEE DEE RIVER AT S-17-72

03040204-050

PD-031	S	FW*	BUCK SWAMP AT S-17-33
PD-349	W	FW*	BUCK SWAMP AT S-17-42

03040204-060

PD-052	P	FW	LITTLE PEE DEE AT S-34-60

03040204-070

PD-037	S	FW*	WHITE OAK CREEK AT S-34-31
PD-042	P	ORW	LITTLE PEE DEE RIVER AT US 501, GALIVANT'S FERRY
PD-189	P	ORW	LITTLE PEE DEE RIVER AT US 378 12 MILES W. CONWAY
PD-350	W	ORW	LITTLE PEE DEE RIVER AT PUNCHBOWL LANDING

03040204-080

PD-351	W/BIO	ORW	CEDAR CREEK AT S-26-23
PD-176	W	FW*	LAKE SWAMP AT S-26-99

03040204-090

PD-177	S	FW*	CHINNERS SWAMP AT S-26-24 1.9 MILES SSE AYNOR
PD-352	W	FW*	CHINNERS SWAMP AT GUNTERS ISLAND ROAD OFF S-26-99

Water Quality Data

Spreadsheet Legend

Station Information:

STATION NUMBER Station ID

TYPE SCDHEC station type code

- P = Primary station, sampled monthly all year round
- S = Secondary station, sampled monthly May - October
- P* = Secondary station upgraded to primary station parameter coverage and sampling frequency for basin study
- W = Special watershed station added for the Pee Dee River Basin study
- BIO = Indicates macroinvertebrate community data assessed

WATERBODY NAME Stream or Lake Name

CLASS Stream classification at the point where monitoring station is located

Parameter Abbreviations and Parameter Measurement Units:

DO	Dissolved Oxygen (mg/l)	NH3	Ammonia (mg/l)
BOD	Five-Day Biochemical Oxygen Demand (mg/l)	CD	Cadmium (ug/l)
pH	pH (SU)	CR	Chromium (ug/l)
TP	Total Phosphorus (mg/l)	CU	Copper (ug/l)
TN	Total Nitrogen (mg/l)	PB	Lead (ug/l)
TURB	Turbidity (NTU)	HG	Mercury (ug/l)
TSS	Total Suspended Solids (mg/l)	NI	Nickel (ug/l)
BACT	Fecal Coliform Bacteria (#/100 ml)	ZN	Zinc (ug/l)

Statistical Abbreviations:

N For standards compliance, number of surface samples collected between January, 1994 and December, 1998.
For trends, number of surface samples collected between January, 1984 and December, 1998.
For total phosphorus, an additional trend period of January, 1992 to December, 1998 is also reported.

EXC. Number of samples contravening the appropriate standard

% Percentage of samples contravening the appropriate standard

MEAN EXC. Mean of samples which contravened the applied standard

MED For heavy metals with a human health criterion, this is the median of all surface samples between January, 1994 and December, 1998. DL indicates that the median was the detection limit.

MAG Magnitude of any statistically significant trend, average change per year, expressed in parameter measurement units

GEO MEAN Geometric mean of fecal coliform bacteria samples collected between January, 1994 and December, 1998

Key to Trends:

D Statistically significant decreasing trend in parameter concentration
I Statistically significant increasing trend in parameter concentration
* No statistically significant trend
Blank Insufficient data to test for long term trends

Water Quality Summary - Pee Dee River Basin

STATION			FIRST		DO	DO	DO	MEAN	TRENDS (84-98)							pH	pH	pH	MEAN	TRENDS (84-98)		
NUMBER	TYPE	WATERBODY NAME	CLASS		N	EXC.	%	EXC.	DO	N	MAG	BOD	N	MAG		N	EXC.	%	EXC.	PH	N	MAG
03040201030																						
PD-339	PD	WESTFIELD CK	FW		17	0	0	0								17	0	0	0			
PD-641	BIO	WESTFIELD CK	FW																			
03040201040																						
PD-191	PD	WHITES CK	FW		17	2	12	2.9								17	9	53	5.294			
03040201050																						
PD-012	P	PEE DEE RVR	FW		59	0	0	0	*	171		D	170	-0.029		59	0	0	0	*	171	
PD-015	P	PEE DEE RVR	FW		57	1	2	4.9	*	130		*	129			57	0	0	0	*	130	
PD-028	P	PEE DEE RVR	FW		41	1	2	4.8	D	153	-0.029	D	146	-0.050		41	0	0	0	*	151	
03040201060																						
PD-673	BIO	THOMPSON CK	FW																			
PD-246	S	THOMPSON CK	FW		28	0	0	0	*	84		*	84			28	0	0	0	*	82	
PD-247	S	THOMPSON CK	FW		28	3	11	4.7	*	83		*	83			28	0	0	0	*	80	
PD-671	BIO	DEEP CK	FW																			
PD-338	P*	THOMPSON CK	FW		33	0	0	0	*	49		I	49	0.050		33	2	6	5.45	*	48	
PD-677	BIO	NORTH PRONG CK	FW																			
PD-340	PD	JUNIPER CK	FW		17	0	0	0								17	5	29	5.26			
03040201070																						
PD-107	S	CROOKED CK	FW		18	0	0	0	*	71		D	71	-0.025		18	4	22	5.667	I	71	0.032
PD-014	S	CROOKED CK	FW		18	4	22	4.675	*	72		D	72	-0.050		18	3	17	5.73	I	72	0.023
PD-063	PD	CROOKED CK	FW		17	1	6	4								17	4	24	5.75			
03040201080																						
PD-675	BIO	CEDAR CK	FW																			
PD-151	PD	CEDAR CK	FW		16	0	0	0								16	6	38	5.267			
03040201090																						
PD-336	S	HAGINS PRONG	FW		18	17	94	2.724	*	35		*	35			18	5	28	5.718	I	34	0.033
PD-341	PD	THREE CKS	FW		18	9	50	3.189								18	5	28	5.636			
03040201100																						
PD-674	BIO	BIG BLACK CK	FW																			
PD-004	P	BLACK CK	FW		58	0	0	0	I	172	0.050	D	172	-0.033		58	1	2	5.6	I	169	0.025
PD-676	BIO	LITTLE BLACK CK	FW																			
PD-670	BIO	BLACK CK	FW*																			
PD-613	BIO	SKIPPER CK	FW																			
PD-251	PD	BLACK CK	FW*		16	0	0	0								16	1	6	4.8			
PD-327	P	LAKE ROBINSON	FW*		57	0	0	0	D	173	-0.060	D	173	-0.033		57	0	0	0	I	172	0.080

Water Quality Summary - Pee Dee River Basin

STATION			FIRST	TRENDS (92-98)			TRENDS (84-98)											
NUMBER	TYPE	WATERBODY NAME	CLASS	TP	N	MAG	TP	N	MAG	TN	N	MAG	TURB	N	MAG	TSS	N	MAG
03040201030																		
PD-339	PD	WESTFIELD CK	FW															
PD-641	BIO	WESTFIELD CK	FW															
03040201040																		
PD-191	PD	WHITES CK	FW															
03040201050																		
PD-012	P	PEE DEE RVR	FW	*	72		*	166		D	166	-0.010	*	171				
PD-015	P	PEE DEE RVR	FW	*	68		*	122		*	82		*	130				
PD-028	P	PEE DEE RVR	FW	*	49		*	141		D	141	-0.016	*	145				
03040201060																		
PD-673	BIO	THOMPSON CK	FW															
PD-246	S	THOMPSON CK	FW	*	35		D	78	-0.001				*	84				
PD-247	S	THOMPSON CK	FW	I	35	0.010	*	78					*	83				
PD-671	BIO	DEEP CK	FW															
PD-338	P*	THOMPSON CK	FW	D	41	-0.003	*	45					*	49				
PD-677	BIO	NORTH PRONG CK	FW															
PD-340	PD	JUNIPER CK	FW															
03040201070																		
PD-107	S	CROOKED CK	FW				D	67	0.000				*	71				
PD-014	S	CROOKED CK	FW				D	69	-0.030				*	72				
PD-063	PD	CROOKED CK	FW															
03040201080																		
PD-675	BIO	CEDAR CK	FW															
PD-151	PD	CEDAR CK	FW															
03040201090																		
PD-336	S	HAGINS PRONG	FW				D	33	-0.008				D	35	-1.248			
PD-341	PD	THREE CKS	FW															
03040201100																		
PD-674	BIO	BIG BLACK CK	FW															
PD-004	P	BLACK CK	FW	D	67	-0.010	D	155	-0.003	*	157		*	170				
PD-676	BIO	LITTLE BLACK CK	FW															
PD-670	BIO	BLACK CK	FW*															
PD-613	BIO	SKIPPER CK	FW															
PD-251	PD	BLACK CK	FW*															
PD-327	P	LAKE ROBINSON	FW*	*	71		D	159	0.000	*	156		D	172	-0.037			

Water Quality Summary - Pee Dee River Basin

STATION			FIRST	GEO	BACT	BACT	BACT	MEAN	TRENDS (84-98)			NH3	NH3	CD	CD	CD	CD
NUMBER	TYPE	WATERBODY NAME	CLASS	MEAN	N	EXC.	%	EXC.	BACT	N	MAG	N	EXC.	N	EXC.	MED.	%
03040201030																	
PD-339	PD	WESTFIELD CK	FW	217.073	16	3	19	1426				16	0	6	0	DL	0
PD-641	BIO	WESTFIELD CK	FW														
03040201040																	
PD-191	PD	WHITES CK	FW	22.5478	17	1	6	410				16	0	6	0	DL	0
03040201050																	
PD-012	P	PEE DEE RVR	FW	92.7521	59	9	15	951	I	169	3.250	57	0	21	0	DL	0
PD-015	P	PEE DEE RVR	FW	85.0859	57	5	9	918	*	129		51	0	18	0	DL	0
PD-028	P	PEE DEE RVR	FW	31.1568	41	0	0	0	*	145		39	0	14	0	DL	0
03040201060																	
PD-673	BIO	THOMPSON CK	FW														
PD-246	S	THOMPSON CK	FW	552.453	28	13	46	2750	*	83							
PD-247	S	THOMPSON CK	FW	631.062	28	16	57	2203	D	81	-26.634						
PD-671	BIO	DEEP CK	FW														
PD-338	P*	THOMPSON CK	FW	108.688	33	5	15	1188	*	49		15	0	11	0	DL	0
PD-677	BIO	NORTH PRONG CK	FW														
PD-340	PD	JUNIPER CK	FW	10.6049	16	0	0	0				16	0	6	0	DL	0
03040201070																	
PD-107	S	CROOKED CK	FW	79.9587	18	3	17	1033	*	70							
PD-014	S	CROOKED CK	FW	71.5752	18	1	6	670	D	71	-17.444						
PD-063	PD	CROOKED CK	FW	69.8009	16	0	0	0				15	0	6	0	DL	0
03040201080																	
PD-675	BIO	CEDAR CK	FW														
PD-151	PD	CEDAR CK	FW	70.5039	16	1	6	470				15	0	5	0	DL	0
03040201090																	
PD-336	S	HAGINS PRONG	FW	77.2504	18	1	6	450	D	35	-20.357						
PD-341	PD	THREE CKS	FW	43.8993	18	0	0	0				16	0	5	0	DL	0
03040201100																	
PD-674	BIO	BIG BLACK CK	FW														
PD-004	P	BLACK CK	FW	20.8069	58	0	0	0	*	171		54	0	19	0	DL	0
PD-676	BIO	LITTLE BLACK CK	FW														
PD-670	BIO	BLACK CK	FW*														
PD-613	BIO	SKIPPER CK	FW														
PD-251	PD	BLACK CK	FW*	97.8829	16	1	6	2400				15	0	5	0	DL	0
PD-327	P	LAKE ROBINSON	FW*	9.57189	59	0	0	0	I	172	0.191	54	0	19	0	DL	0

Water Quality Summary - Pee Dee River Basin

STATION NUMBER	TYPE	WATERBODY NAME	FIRST CLASS	CR N	CR EXC.	CR MED.	CR %	CU N	CU EXC.	CU %	PB N	PB EXC.	PB MED.	PB %	HG N	HG EXC.	HG MED.	HG %
03040201030																		
PD-339	PD	WESTFIELD CK	FW	6	0	DL	0	6	0	0	6	0	DL	0	6	0	DL	0
PD-641	BIO	WESTFIELD CK	FW															
03040201040																		
PD-191	PD	WHITES CK	FW	6	0	DL	0	6	0	0	6	0	DL	0	6	0	DL	0
03040201050																		
PD-012	P	PEE DEE RVR	FW	21	0	DL	0	21	0	0	21	0	DL	0	21	0	DL	0
PD-015	P	PEE DEE RVR	FW	18	0	DL	0	18	0	0	18	0	DL	0	17	0	DL	0
PD-028	P	PEE DEE RVR	FW	14	0	DL	0	14	2	14	14	0	DL	0	13	0	DL	0
03040201060																		
PD-673	BIO	THOMPSON CK	FW															
PD-246	S	THOMPSON CK	FW															
PD-247	S	THOMPSON CK	FW															
PD-671	BIO	DEEP CK	FW															
PD-338	P*	THOMPSON CK	FW	11	0	DL	0	11	0	0	11	0	DL	0	11	0	DL	0
PD-677	BIO	NORTH PRONG CK	FW															
PD-340	PD	JUNIPER CK	FW	6	0	DL	0	6	0	0	6	0	DL	0	6	0	DL	0
03040201070																		
PD-107	S	CROOKED CK	FW															
PD-014	S	CROOKED CK	FW															
PD-063	PD	CROOKED CK	FW	6	0	DL	0	6	0	0	6	0	DL	0	6	0	DL	0
03040201080																		
PD-675	BIO	CEDAR CK	FW															
PD-151	PD	CEDAR CK	FW	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040201090																		
PD-336	S	HAGINS PRONG	FW															
PD-341	PD	THREE CKS	FW	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040201100																		
PD-674	BIO	BIG BLACK CK	FW															
PD-004	P	BLACK CK	FW	19	0	DL	0	19	0	0	19	0	DL	0	19	0	DL	0
PD-676	BIO	LITTLE BLACK CK	FW															
PD-670	BIO	BLACK CK	FW*															
PD-613	BIO	SKIPPER CK	FW															
PD-251	PD	BLACK CK	FW*	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
PD-327	P	LAKE ROBINSON	FW*	19	0	DL	0	19	0	0	19	0	DL	0	19	0	DL	0

Water Quality Summary - Pee Dee River Basin

STATION			FIRST		NI	NI	NI		ZN	ZN	ZN
NUMBER	TYPE	WATERBODY NAME	CLASS		N	EXC.	%		N	EXC.	%
03040201030											
PD-339	PD	WESTFIELD CK	FW		6	0	0		6	0	0
PD-641	BIO	WESTFIELD CK	FW								
03040201040											
PD-191	PD	WHITES CK	FW		6	0	0		6	0	0
03040201050											
PD-012	P	PEE DEE RVR	FW		21	0	0		21	0	0
PD-015	P	PEE DEE RVR	FW		18	0	0		18	0	0
PD-028	P	PEE DEE RVR	FW		14	0	0		14	0	0
03040201060											
PD-673	BIO	THOMPSON CK	FW								
PD-246	S	THOMPSON CK	FW								
PD-247	S	THOMPSON CK	FW								
PD-671	BIO	DEEP CK	FW								
PD-338	P*	THOMPSON CK	FW		11	0	0		11	0	0
PD-677	BIO	NORTH PRONG CK	FW								
PD-340	PD	JUNIPER CK	FW		6	0	0		6	0	0
03040201070											
PD-107	S	CROOKED CK	FW								
PD-014	S	CROOKED CK	FW								
PD-063	PD	CROOKED CK	FW		6	0	0		6	0	0
03040201080											
PD-675	BIO	CEDAR CK	FW								
PD-151	PD	CEDAR CK	FW		5	0	0		5	0	0
03040201090											
PD-336	S	HAGINS PRONG	FW								
PD-341	PD	THREE CKS	FW		5	0	0		5	0	0
03040201100											
PD-674	BIO	BIG BLACK CK	FW								
PD-004	P	BLACK CK	FW		19	0	0		19	0	0
PD-676	BIO	LITTLE BLACK CK	FW								
PD-670	BIO	BLACK CK	FW*								
PD-613	BIO	SKIPPER CK	FW								
PD-251	PD	BLACK CK	FW*		5	0	0		5	0	0
PD-327	P	LAKE ROBINSON	FW*		19	0	0		19	0	0

Water Quality Summary - Pee Dee River Basin

STATION			FIRST	DO	DO	DO	MEAN	TRENDS (84-98)						pH	pH	pH	MEAN	TRENDS (84-98)		
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	DO	N	MAG	BOD	N	MAG	N	EXC.	%	EXC.	PH	N	MAG
03040201110																				
PD-159	S	BLACK CK	FW*	18	0	0	0	*	74		*	70		18	0	0	0	I	73	0.043
PD-268	S	PRESTWOOD LAKE	FW*	17	0	0	0	*	74		*	71		17	0	0	0	I	72	0.033
PD-081	S	PRESTWOOD LAKE	FW*	18	0	0	0	*	74		*	71		18	0	0	0	I	72	0.033
PD-258	S	SNAKE BRANCH	FW	25	9	36	3.533	I	82	0.243	D	80	-0.167	25	9	36	5.743	D	81	-0.017
PD-137	S	SNAKE BRANCH	FW	17	0	0	0	*	74		*	72		17	7	41	5.777	*	73	
PD-021	P	BLACK CK	FW*	60	0	0	0	*	174		D	170	-0.033	60	3	5	3.99	I	174	0.040
PD-330	S	BLACK CK	FW*	18	0	0	0	*	76		D	72	-0.177	18	0	0	0	*	75	
PD-023	P	BLACK CK	FW*	56	0	0	0	I	171	0.045	D	168	-0.110	56	0	0	0	I	171	0.025
PD-025	P	BLACK CK	FW	59	0	0	0	*	181		D	171	-0.088	59	4	7	5.742	I	180	0.021
PD-141	S	PIPE	FW	18	8	44	3.675	D	71	-0.100	I	70	0.867	18	1	6	4.4	*	70	
PD-027	P	BLACK CK	FW	59	0	0	0	*	187		D	173	-0.082	59	1	2	5.8	I	185	0.014
PD-103	S	HIGH HILL CK	FW	30	21	70	3.419	*	86		*	83		30	5	17	5.756	*	85	
PD-078	PD/BIO	BLACK CK	FW	17	0	0	0							17	2	12	5.85			
03040201120																				
PD-337	P	PEE DEE RVR	FW	60	1	2	4.1	D	98	-0.100	D	98	-0.028	60	1	2	5.9	*	98	
03040201130																				
PD-255	S	JEFFERIES CK	FW*	29	17	59	2.094	I	86	0.092	*	83		29	0	0	0	*	83	
PD-256	S	JEFFERIES CK	FW*	17	15	88	2.29	*	72		*	70		17	0	0	0	*	70	
PD-065	P	GULLEY BR	FW	59	0	0	0	*	74		*	73		59	1	2	5.9	*	74	
PD-230	S	MIDDLE SWAMP	FW*	18	13	72	2.819	*	74		D	73	-0.050	18	0	0	0	*	72	
PD-035	S	JEFFERIES CK	FW*	18	0	0	0	*	74		*	73		18	0	0	0	D	73	-0.025
PD-231	P*	JEFFERIES CK	FW*	37	1	3	2	*	97		D	94	-0.025	37	0	0	0	*	95	
PD-167	PD	WILLOW CK	FW	19	11	58	3.291							19	5	26	5.784			
03040201140																				
PD-076	P	PEE DEE RVR	FW	60	0	0	0	D	173	-0.054	D	171	-0.033	60	0	0	0	*	172	
03040201150																				
PD-320	S	SMITH SWAMP	FW*	18	16	89	2.031	I	74	0.075	D	74	-0.141	18	0	0	0	*	73	
PD-187	P	SMITH SWAMP	FW*	60	30	50	2.398	*	124		D	124	-0.137	60	0	0	0	D	123	-0.021
PD-097	P*	CATFISH CANAL	FW*	35	20	57	2.445	*	94		*	94		34	0	0	0	*	93	
03040201160																				
PD-060	PD	PEE DEE RVR	FW	18	0	0	0							18	1	6	5.6			
03040201170																				
PD-061	P	PEE DEE RVR	FW	59	5	8	4.26	D	180	-0.063	D	172	-0.050	60	3	5	5.75	*	178	
03040203180																				
PD-038	P	LUMBER RVR	FW	60	2	3	3.2	D	179	-0.025	D	175	-0.038	60	13	22	5.715	I	178	0.025
03040203210																				
PD-347	PD	ASHPOLE SWAMP	FW*	16	11	69	2.168							16	0	0	0			

Water Quality Summary - Pee Dee River Basin

STATION			FIRST	TRENDS (92-98)			TRENDS (84-98)											
NUMBER	TYPE	WATERBODY NAME	CLASS	TP	N	MAG	TP	N	MAG	TN	N	MAG	TURB	N	MAG	TSS	N	MAG
03040201110																		
PD-159	S	BLACK CK	FW*				D	67	0.000				I	73	0.038			
PD-268	S	PRESTWOOD LAKE	FW*				D	70	0.000				I	72	0.083			
PD-081	S	PRESTWOOD LAKE	FW*				*	69					I	73	0.064			
PD-258	S	SNAKE BRANCH	FW	*	31		D	79	-0.024				*	82				
PD-137	S	SNAKE BRANCH	FW				D	71	-0.005				*	73				
PD-021	P	BLACK CK	FW*	*	71		*	145		D	164	-0.010	I	172	0.039			
PD-330	S	BLACK CK	FW*				D	70	-0.010				D	75	-0.260			
PD-023	P	BLACK CK	FW*	D	68	-0.008	D	162	-0.008	D	163	-0.043	D	170	-0.150			
PD-025	P	BLACK CK	FW	D	71	-0.005	D	165	-0.007	D	164	-0.037	D	172	-0.057			
PD-141	S	PIPE	FW				D	70	-0.030	I	71	6285.000	I	71	0.861			
PD-027	P	BLACK CK	FW	D	70	-0.005	D	166	-0.005	D	166	-0.032	*	171		D	163	-0.231
PD-103	S	HIGH HILL CK	FW	*	34		*	81					I	84	0.250			
PD-078	PD/BIO	BLACK CK	FW															
03040201120																		
PD-337	P	PEE DEE RVR	FW	*	74		*	90		*	89		*	98				
03040201130																		
PD-255	S	JEFFERIES CK	FW*	*	34		*	79					*	84				
PD-256	S	JEFFERIES CK	FW*				*	70					*	70				
PD-065	P	GULLEY BR	FW	*	66		*	66		D	66	-0.087	*	74				
PD-230	S	MIDDLE SWAMP	FW*				D	66	-0.015				*	73				
PD-035	S	JEFFERIES CK	FW*				D	66	-0.062				I	73	0.317			
PD-231	P*	JEFFERIES CK	FW*	D	39	-0.064	D	85	-0.044				I	94	0.200			
PD-167	PD	WILLOW CK	FW															
03040201140																		
PD-076	P	PEE DEE RVR	FW	I	69	0.005	*	163		D	161	-0.010	I	173	0.625			
03040201150																		
PD-320	S	SMITH SWAMP	FW*				D	70	-0.085				D	73	-0.300			
PD-187	P	SMITH SWAMP	FW*	*	66		D	113	-0.075	*	66		D	124	-0.384			
PD-097	P*	CATFISH CANAL	FW*	I	41	0.010	*	88					*	94				
03040201160																		
PD-060	PD	PEE DEE RVR	FW															
03040201170																		
PD-061	P	PEE DEE RVR	FW	*	68		D	162	-0.001	D	161	-0.020	*	173		D	164	-0.191
03040203180																		
PD-038	P	LUMBER RVR	FW	*	72		D	164	-0.003	*	165		I	174	0.071	*	167	
03040203210																		
PD-347	PD	ASHPOLE SWAMP	FW*															

Water Quality Summary - Pee Dee River Basin

STATION			FIRST	GEO	BACT	BACT	BACT	MEAN	TRENDS (84-98)			NH3	NH3	CD	CD	CD	CD
NUMBER	TYPE	WATERBODY NAME	CLASS	MEAN	N	EXC.	%	EXC.	BACT	N	MAG	N	EXC.	N	EXC.	MED.	%
03040201110																	
PD-159	S	BLACK CK	FW*	9.49959	18	1	6	460	I	72	0.000						
PD-268	S	PRESTWOOD LAKE	FW*	100.941	16	0	0	0	I	73	14.000						
PD-081	S	PRESTWOOD LAKE	FW*	79.3855	18	1	6	600	I	74	9.400						
PD-258	S	SNAKE BRANCH	FW	1612.25	25	23	92	3528	I	83	81.667	1	0				
PD-137	S	SNAKE BRANCH	FW	320.588					*	74							
PD-021	P	BLACK CK	FW*	69.4051	59	9	15	710	I	172	3.500	58	0	20	0	DL	0
PD-330	S	BLACK CK	FW*	119.872	17	2	12	2000	I	74	20.800						
PD-023	P	BLACK CK	FW*	74.7921	56	6	11	762	*	168		56	0	19	0	DL	0
PD-025	P	BLACK CK	FW	75.9155	59	2	3	705	I	179	1.667	55	0	19	0	DL	0
PD-141	S	PIPE	FW	125118	18	18	100	242944	I	71	6285.714						
PD-027	P	BLACK CK	FW	81.1483	58	3	5	556	D	179	-2.500	56	0	20	1	DL	5
PD-103	S	HIGH HILL CK	FW	165.555	30	5	17	1372	I	86	4.889	2	0				
PD-078	PD/BIO	BLACK CK	FW	125.765	17	1	6	2000				17	0	5	0	DL	0
03040201120																	
PD-337	P	PEE DEE RVR	FW	52.9117	60	0	0	0	D	98	-9.600	53	0	18	0	DL	0
03040201130																	
PD-255	S	JEFFERIES CK	FW*	131.79	29	0	0	0	*	85		1	0				
PD-256	S	JEFFERIES CK	FW*	107.558	17	1	6	1200	*	72							
PD-065	P	GULLEY BR	FW	1897.67	59	47	80	14302	D	74	-313.750	55	0	19	0	DL	0
PD-230	S	MIDDLE SWAMP	FW*	102.946	18	2	11	595	*	74							
PD-035	S	JEFFERIES CK	FW*	103.781	18	0	0	0	*	73							
PD-231	P*	JEFFERIES CK	FW*	93.0334	37	0	0	0	*	97		18	0	5	0	DL	0
PD-167	PD	WILLOW CK	FW	87.9385	19	1	5	410				19	0	5	0	DL	0
03040201140																	
PD-076	P	PEE DEE RVR	FW	47.7468	60	2	3	595	I	174	1.519	58	0	20	0	DL	0
03040201150																	
PD-320	S	SMITH SWAMP	FW*	125.944	18	2	11	1245	D	74	11.714						
PD-187	P	SMITH SWAMP	FW*	125.612	60	9	15	410	D	124	-33.333	51	0	15	0	DL	0
PD-097	P*	CATFISH CANAL	FW*	116.173	34	4	12	1062.5	I	93	5.000	18	0	5	0	DL	0
03040201160																	
PD-060	PD	PEE DEE RVR	FW	18.4612	18	0	0	0				18	0	5	0	DL	0
03040201170																	
PD-061	P	PEE DEE RVR	FW	21.4952	59	0	0	0	*	172		56	0	20	0	DL	0
03040203180																	
PD-038	P	LUMBER RVR	FW	62.1875	51	1	2	1000	*	172		57	0	19	0	DL	0
03040203210																	
PD-347	PD	ASHPOLE SWAMP	FW*	65.6504	16	0	0	0				16	0	5	0	DL	0

Water Quality Summary - Pee Dee River Basin

STATION NUMBER	TYPE	WATERBODY NAME	FIRST CLASS	CR N	CR EXC.	CR MED.	CR %	CU N	CU EXC.	CU %	PB N	PB EXC.	PB MED.	PB %	HG N	HG EXC.	HG MED.	HG %
03040201110																		
PD-159	S	BLACK CK	FW*															
PD-268	S	PRESTWOOD LAKE	FW*															
PD-081	S	PRESTWOOD LAKE	FW*															
PD-258	S	SNAKE BRANCH	FW															
PD-137	S	SNAKE BRANCH	FW															
PD-021	P	BLACK CK	FW*	20	0	DL	0	20	2	10	20	0	DL	0	19	0	DL	0
PD-330	S	BLACK CK	FW*															
PD-023	P	BLACK CK	FW*	19	1	DL	5	19	1	5	19	0	DL	0	18	0	DL	0
PD-025	P	BLACK CK	FW	19	0	DL	0	19	1	5	19	0	DL	0	19	0	DL	0
PD-141	S	PIPE	FW															
PD-027	P	BLACK CK	FW	20	1	DL	5	20	2	10	20	0	DL	0	20	0	DL	0
PD-103	S	HIGH HILL CK	FW															
PD-078	PD/BIO	BLACK CK	FW	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040201120																		
PD-337	P	PEE DEE RVR	FW	18	2	DL	11	18	1	6	18	0	DL	0	18	0	DL	0
03040201130																		
PD-255	S	JEFFERIES CK	FW*															
PD-256	S	JEFFERIES CK	FW*															
PD-065	P	GULLEY BR	FW	19	0	DL	0	19	3	16	19	0	DL	0	18	0	DL	0
PD-230	S	MIDDLE SWAMP	FW*															
PD-035	S	JEFFERIES CK	FW*															
PD-231	P*	JEFFERIES CK	FW*	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
PD-167	PD	WILLOW CK	FW	5	0	DL	0	5	1	20	5	0	DL	0	5	0	DL	0
03040201140																		
PD-076	P	PEE DEE RVR	FW	20	1	DL	5	20	2	10	20	0	DL	0	19	0	DL	0
03040201150																		
PD-320	S	SMITH SWAMP	FW*															
PD-187	P	SMITH SWAMP	FW*	15	0	DL	0	15	3	20	15	0	DL	0	14	0	DL	0
PD-097	P*	CATFISH CANAL	FW*	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040201160																		
PD-060	PD	PEE DEE RVR	FW	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040201170																		
PD-061	P	PEE DEE RVR	FW	20	0	DL	0	20	0	0	20	0	DL	0	19	0	DL	0
03040203180																		
PD-038	P	LUMBER RVR	FW	19	0	DL	0	19	0	0	19	0	DL	0	19	0	DL	0
03040203210																		
PD-347	PD	ASHPOLE SWAMP	FW*	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0

Water Quality Summary - Pee Dee River Basin

STATION NUMBER	TYPE	WATERBODY NAME	FIRST CLASS		NI N	NI EXC.	NI %		ZN N	ZN EXC.	ZN %
03040201110											
PD-159	S	BLACK CK	FW*								
PD-268	S	PRESTWOOD LAKE	FW*								
PD-081	S	PRESTWOOD LAKE	FW*								
PD-258	S	SNAKE BRANCH	FW								
PD-137	S	SNAKE BRANCH	FW								
PD-021	P	BLACK CK	FW*		20	0	0		20	0	0
PD-330	S	BLACK CK	FW*								
PD-023	P	BLACK CK	FW*		19	0	0		19	1	5
PD-025	P	BLACK CK	FW		19	0	0		19	0	0
PD-141	S	PIPE	FW								
PD-027	P	BLACK CK	FW		20	0	0		20	3	15
PD-103	S	HIGH HILL CK	FW								
PD-078	PD/BIO	BLACK CK	FW		5	0	0		5	0	0
03040201120											
PD-337	P	PEE DEE RVR	FW		18	0	0		18	1	6
03040201130											
PD-255	S	JEFFERIES CK	FW*								
PD-256	S	JEFFERIES CK	FW*								
PD-065	P	GULLEY BR	FW		19	0	0		19	2	11
PD-230	S	MIDDLE SWAMP	FW*								
PD-035	S	JEFFERIES CK	FW*								
PD-231	P*	JEFFERIES CK	FW*		5	0	0		5	0	0
PD-167	PD	WILLOW CK	FW		5	0	0		5	0	0
03040201140											
PD-076	P	PEE DEE RVR	FW		20	0	0		20	1	5
03040201150											
PD-320	S	SMITH SWAMP	FW*								
PD-187	P	SMITH SWAMP	FW*		15	0	0		15	0	0
PD-097	P*	CATFISH CANAL	FW*		5	0	0		5	0	0
03040201160											
PD-060	PD	PEE DEE RVR	FW		5	0	0		5	0	0
03040201170											
PD-061	P	PEE DEE RVR	FW		21	0	0		20	3	15
03040203180											
PD-038	P	LUMBER RVR	FW		19	0	0		19	0	0
03040203210											
PD-347	PD	ASHPOLE SWAMP	FW*		5	0	0		5	0	0

Water Quality Summary - Pee Dee River Basin

STATION			FIRST	DO	DO	DO	MEAN	TRENDS (84-98)						pH	pH	pH	MEAN	TRENDS (84-98)		
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	DO	N	MAG	BOD	N	MAG	N	EXC.	%	EXC.	PH	N	MAG
03040204010																				
PD-306	S	PANTHER CK	FW	18	12	67	3.387	*	72		*	72		18	3	17	5.553	I	72	0.044
PD-016	S	PANTHER CK	FW	18	14	78	3.468	I	73	0.160	D	73	-0.075	18	4	22	5.685	*	73	
PD-017A	S	MCLAURINS MILL POND	FW	17	12	71	3.608	I	72	0.100	*	72		17	4	24	5.64	I	72	0.027
PD-062	S	GUM SWAMP	FW	18	5	28	3.52	I	180	1.350				18	8	44	5.42			
PD-365	PD	LITTLE PEE DEE RVR	FW	24	0	0	0							24	10	42	5.732			
03040204030																				
PD-069	P	LITTLE PEE DEE RVR	FW	61	1	2	3.8	*	173		D	171	-0.029	61	15	25	5.743	I	173	0.042
PD-029E	S	LITTLE PEE DEE RVR	FW	16	1	6	3.7	I	71	0.050	*	69		16	2	13	5.57	I	70	0.038
PD-055	P*	LITTLE PEE DEE RVR	FW	36	3	8	4.267	*	92		D	90	-0.017	36	9	25	5.767	I	92	0.020
PD-030	P*	MAPLE SWAMP	FW*	36	21	58	2.067	*	92		D	91	-0.050	36	1	3	3.1	D	91	0.017
PD-030A	S	LITTLE PEE DEE RVR	FW	18	2	11	3.1	*	72		D	71	-0.025	18	2	11	5.375	*	71	
PD-348	PD	LITTLE PEE DEE RVR	FW	15	0	0	0							15	6	40	5.545			
03040204050																				
PD-031	S	BUCK SWAMP	FW*	17	14	82	2.189	*	73		D	70	-0.329	17	0	0	0	*	72	
PD-349	PD	BUCK SWAMP	FW*	18	6	33	2.6							18	0	0	0			
03040204056																				
PD-052	P	LITTLE PEE DEE RVR	FW	58	1	2	4.5	*	104		*	105		59	14	24	5.586	I	105	0.050
03040204070																				
PD-037	S	WHITE OAK CK	FW*	26	3	12	2.133	D	83	-0.150	I	82	0.150	26	0	0	0	D	82	-0.018
PD-042	P	LITTLE PEE DEE RVR	ORW	60	7	12	4.521	*	106		*	105		60	13	22	5.81	*	106	
PD-189	P	LITTLE PEE DEE RVR	ORW	60	16	27	4.212	D	171	-0.050	D	171	-0.033	60	12	20	5.787	I	171	0.020
PD-350	PD	LITTLE PEE DEE RVR	ORW	16	10	63	4.05							16	5	31	5.7			
03040204080																				
PD-351	PD	CEDAR CK	ORW	18	12	67	3.296							18	10	56	5.692			
PD-176	PD	LAKE SWAMP	FW*	18	7	39	2.6	I	58	0.078	*	57		18	0	0	0	*	57	
03040204090																				
PD-177	S	CHINNERS SWAMP	FW*	18	13	72	2.173	*	74		D	72	-0.073	18	0	0	0	*	73	
PD-352	PD	CHINNERS SWAMP	FW*	18	8	44	2.556							18	0	0	0			

Water Quality Summary - Pee Dee River Basin

STATION			FIRST	TRENDS (92-98)			TRENDS (84-98)											
NUMBER	TYPE	WATERBODY NAME	CLASS	TP	N	MAG	TP	N	MAG	TN	N	MAG	TURB	N	MAG	TSS	N	MAG
03040204010																		
PD-306	S	PANTHER CK	FW				*	70					I	82	0.181			
PD-016	S	PANTHER CK	FW				D	70	-0.019				*	73				
PD-017A	S	MCLAURINS MILL POND	FW				D	69	-0.003				*	72				
PD-062	S	GUM SWAMP	FW															
PD-365	PD	LITTLE PEE DEE RVR	FW															
03040204030																		
PD-069	P	LITTLE PEE DEE RVR	FW	*	69		D	161	-0.007	D	158	-0.023	I	172	0.100			
PD-029E	S	LITTLE PEE DEE RVR	FW				D	64	-0.012				I	70	0.100			
PD-055	P*	LITTLE PEE DEE RVR	FW	D	41	-0.034	D	87	-0.013				I	92	0.073			
PD-030	P*	MAPLE SWAMP	FW*	*	42		D	88	-0.028				I	92	0.400			
PD-030A	S	LITTLE PEE DEE RVR	FW				*	70					I	72	0.133			
PD-348	PD	LITTLE PEE DEE RVR	FW															
03040204050																		
PD-031	S	BUCK SWAMP	FW*				D	67	-0.061				D	73	-0.900			
PD-349	PD	BUCK SWAMP	FW*															
03040204056																		
PD-052	P	LITTLE PEE DEE RVR	FW	D	69	-0.015	D	95	-0.020	D	95	-0.022	*	104				
03040204070																		
PD-037	S	WHITE OAK CK	FW*	I	32	0.320	D	77	-0.108				I	83	0.383			
PD-042	P	LITTLE PEE DEE RVR	ORW	D	77	-0.005	D	103	-0.007	D	95	-0.017	I	106	0.100			
PD-189	P	LITTLE PEE DEE RVR	ORW	D	68	-0.005	D	161	-0.001	D	160	0.021	I	170	0.085			
PD-350	PD	LITTLE PEE DEE RVR	ORW															
03040204080																		
PD-351	PD	CEDAR CK	ORW															
PD-176	PD	LAKE SWAMP	FW*				*	56					*	58				
03040204090																		
PD-177	S	CHINNERS SWAMP	FW*				D	71	-0.002				*	74				
PD-352	PD	CHINNERS SWAMP	FW*															

Water Quality Summary - Pee Dee River Basin

STATION			FIRST	GEO	BACT	BACT	BACT	MEAN	TRENDS (84-98)			NH3	NH3	CD	CD	CD	CD
NUMBER	TYPE	WATERBODY NAME	CLASS	MEAN	N	EXC.	%	EXC.	BACT	N	MAG	N	EXC.	N	EXC.	MED.	%
03040204010																	
PD-306	S	PANTHER CK	FW	141.692	18	1	6	1900	I	71	6.308						
PD-016	S	PANTHER CK	FW	104.948	18	0	0	0	*	72							
PD-017A	S	MCLAURINS MILL POND	FW	24.8607	17	0	0	0	D	71	-9.683						
PD-062	S	GUM SWAMP	FW	70.3133	18	1	9	480									
PD-365	PD	LITTLE PEE DEE RVR	FW	68.5142	24	1	4	600				21	0	7	0	DL	0
03040204030																	
PD-069	P	LITTLE PEE DEE RVR	FW	85.6946	61	0	0	0	I	173	3.364	55	0	20	0	DL	0
PD-029E	S	LITTLE PEE DEE RVR	FW	74.7355	15	1	7	450	*	70							
PD-055	P*	LITTLE PEE DEE RVR	FW	64.3528	36	1	3	730	*	92		17	0	5	0	DL	0
PD-030	P*	MAPLE SWAMP	FW*	155.841	36	5	14	950	*	91		18	0	5	0	DL	0
PD-030A	S	LITTLE PEE DEE RVR	FW	106.974	18	1	6	720	*	71				1	0	DL	0
PD-348	PD	LITTLE PEE DEE RVR	FW	65.7987	15	1	7	670				14	0	4	0	DL	0
03040204050																	
PD-031	S	BUCK SWAMP	FW*	120.692	17	1	6	480	D	72	-49.545						
PD-349	PD	BUCK SWAMP	FW*	46.9495	18	1	6	670				17	0	5	0	DL	0
03040204056																	
PD-052	P	LITTLE PEE DEE RVR	FW	77.8467	57	1	2	1000	D	103	-5.333	58	0	18	0	DL	0
03040204070																	
PD-037	S	WHITE OAK CK	FW*	284.638	25	8	32	1496	I	82	14.250	2	0	2	0	DL	0
PD-042	P	LITTLE PEE DEE RVR	ORW	62.0815	60	2	3	625	*	105		58	0	20	0	DL	0
PD-189	P	LITTLE PEE DEE RVR	ORW	66.2991	60	4	7	787.5	I	171	1.400	58	0	20	0	DL	0
PD-350	PD	LITTLE PEE DEE RVR	ORW	40.6271	16	0	0	0				16	0	5	0	DL	0
03040204080																	
PD-351	PD	CEDAR CK	ORW	121.793	18	2	11	1310				18	0	5	0	DL	0
PD-176	PD	LAKE SWAMP	FW*	85.9856	18	1	6	570	*	55		18	0	5	0	DL	0
03040204090																	
PD-177	S	CHINNERS SWAMP	FW*	71.7767	18	0	0	0	*	73							
PD-352	PD	CHINNERS SWAMP	FW*	115.012	18	3	17	640				17	0	5	0	DL	0

Water Quality Summary - Pee Dee River Basin

STATION			FIRST	CR	CR	CR	CR	CU	CU	CU	PB	PB	PB	PB	HG	HG	HG	HG
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	MED.	%	N	EXC.	%	N	EXC.	MED.	%	N	EXC.	MED.	%
03040204010																		
PD-306	S	PANTHER CK	FW															
PD-016	S	PANTHER CK	FW															
PD-017A	S	MCLAURINS MILL POND	FW															
PD-062	S	GUM SWAMP	FW															
PD-365	PD	LITTLE PEE DEE RVR	FW	7	0	DL	0	7	0	0	7	0	DL	0	7	0	DL	0
03040204030																		
PD-069	P	LITTLE PEE DEE RVR	FW	20	0	DL	0	20	0	0	20	0	DL	0	20	0	DL	0
PD-029E	S	LITTLE PEE DEE RVR	FW															
PD-055	P*	LITTLE PEE DEE RVR	FW	5	0	DL	0	5	1	20	5	0	DL	0	5	0	DL	0
PD-030	P*	MAPLE SWAMP	FW*	5	0	DL	0	5	1	20	5	0	DL	0	5	0	DL	0
PD-030A	S	LITTLE PEE DEE RVR	FW	1	0	DL	0	1	0	0	1	0	DL	0	1	0	DL	0
PD-348	PD	LITTLE PEE DEE RVR	FW	4	0	DL	0	4	0	0	4	0	DL	0	4	0	DL	0
03040204050																		
PD-031	S	BUCK SWAMP	FW*															
PD-349	PD	BUCK SWAMP	FW*	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040204056																		
PD-052	P	LITTLE PEE DEE RVR	FW	18	0	DL	0	18	0	0	18	0	DL	0	18	0	DL	0
03040204070																		
PD-037	S	WHITE OAK CK	FW*	2	0	DL	0	2	1	50	2	0	DL	0	2	0	DL	0
PD-042	P	LITTLE PEE DEE RVR	ORW	20	0	DL	0	20	1	5	20	0	DL	0	19	0	DL	0
PD-189	P	LITTLE PEE DEE RVR	ORW	20	1	DL	5	20	2	10	20	0	DL	0	20	0	DL	0
PD-350	PD	LITTLE PEE DEE RVR	ORW	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040204080																		
PD-351	PD	CEDAR CK	ORW	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
PD-176	PD	LAKE SWAMP	FW*	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040204090																		
PD-177	S	CHINNERS SWAMP	FW*															
PD-352	PD	CHINNERS SWAMP	FW*	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0

Water Quality Summary - Pee Dee River Basin

STATION NUMBER	TYPE	WATERBODY NAME	FIRST CLASS	NI N	NI EXC.	NI %	ZN N	ZN EXC.	ZN %
03040204010									
PD-306	S	PANTHER CK	FW						
PD-016	S	PANTHER CK	FW						
PD-017A	S	MCLAURINS MILL POND	FW						
PD-062	S	GUM SWAMP	FW						
PD-365	PD	LITTLE PEE DEE RVR	FW	7	0	0	7	0	0
03040204030									
PD-069	P	LITTLE PEE DEE RVR	FW	20	0	0	20	1	5
PD-029E	S	LITTLE PEE DEE RVR	FW						
PD-055	P*	LITTLE PEE DEE RVR	FW	5	0	0	5	1	20
PD-030	P*	MAPLE SWAMP	FW*	5	0	0	5	0	0
PD-030A	S	LITTLE PEE DEE RVR	FW	1	0	0	1	0	0
PD-348	PD	LITTLE PEE DEE RVR	FW	4	0	0	4	0	0
03040204050									
PD-031	S	BUCK SWAMP	FW*						
PD-349	PD	BUCK SWAMP	FW*	5	0	0	5	0	0
03040204056									
PD-052	P	LITTLE PEE DEE RVR	FW	18	0	0	18	1	6
03040204070									
PD-037	S	WHITE OAK CK	FW*	2	0	0	2	1	50
PD-042	P	LITTLE PEE DEE RVR	ORW	20	0	0	20	1	5
PD-189	P	LITTLE PEE DEE RVR	ORW	20	0	0	20	0	0
PD-350	PD	LITTLE PEE DEE RVR	ORW	5	0	0	5	0	0
03040204080									
PD-351	PD	CEDAR CK	ORW	5	0	0	5	1	20
PD-176	PD	LAKE SWAMP	FW*	5	0	0	5	0	0
03040204090									
PD-177	S	CHINNERS SWAMP	FW*						
PD-352	PD	CHINNERS SWAMP	FW*	5	0	0	5	0	0

APPENDIX D.

Waccamaw River/Atlantic Intracoastal Waterway Basin

Ambient Water Quality Monitoring Site Descriptions

Station #	Type	Class	Description
03040206-090			
MD-124	P	FW*	WACCAMAW RIVER AT SC 9 7.0 MILES W OF CHERRY GROVE
03040206-100			
PD-362	W	FW	BUCK CREEK AT SC 905
03040206-110			
PD-363	W	FW	SIMPSON CREEK AT SC 905
03040206-130			
MD-158	S	FW	CRAB TREE SWP AT LONG ST BELOW CONWAY #1 POND OUTFALL
MD-107	S	FW	KINGSTON LAKE NEAR PUMP STA ON LAKESIDE DRIVE, CONWAY
03040206-140			
MD-088	S	FW	AIWW 1 MILE SOUTH OF BRIDGE ON US 501
MD-089	S	FW	AIWW 2 MILES SOUTH OF BRIDGE ON US 501
MD-127	P	FW	AIWW AT SC 544 7.5 MILES SW OF MYRTLE BEACH
MD-110	S	FW*	WACCAMAW RIVER AT US 501 BY-PASS AROUND CONWAY
MD-111	S	FW*	WACCAMAW RIVER AT COX'S FERRY ON COUNTY ROAD 110
MD-136	S	FW*	WACCAMAW R. 0.25 MILES UPSTREAM OF JUNCTION WITH AIWW
03040206-150			
MD-146	P	FW*	WACCAMAW R. & AIWW 1 MI BELOW JCT, BUCKSPORT LANDING
MD-137	S	FW*	WACCAMAW R. NEAR MOUTH OF BULL CK AT CHANNEL MKER 50
MD-138	P	FW*	WACCAMAW RIVER AT CHANNEL MARKER 57
(MD-080)	P	SB	WINYAH BAY @ MARKER 92 AT MOUTH OF PEE DEE AND WACCAMAW RIVERS
03040207-020			
MD-162	P	SA	LITTLE RIVER AT S END OF ISLAND DUE E OF TOWN
MD-125	S	FW/SA	AIWW (LITTLE RIVER) ON SC 9 (US 17)
MD-091	S	FW	AIWW 4 MILES N OF BRIDGE ON US 501
MD-085	S	FW	AIWW AT POINT 3 MILES NORTH OF BRIDGE ON US 501
MD-087	P	FW	AIWW JUST NORTH OF BRIDGE ON US 501
03040207-030			
MD-075	P	SB/FW*	SAMPIT R. BETWEEN MOUTHS OF PORTS CK & PENNYROYAL CK
MD-076N	S	FW	TURKEY CREEK S-22-42 SW OF GEORGETOWN
MD-149	P	FW	WHITES CK 100 YDS UPSTREAM OF JUNCTION WITH SAMPIT RIVER
MD-077	P	SB/FW*	SAMPIT RIVER AT US 17
MD-073	P	SB/FW*	SAMPIT RIVER OPPOSITE AMERICAN CYANAMID CHEMICAL CO
MD-074	S	SB/FW*	SAMPIT RIVER AT CHANNEL MARKER #30
03040207-040			
(MD-080)	P	SB	WINYAH BAY @ MARKER 92 AT MOUTH OF PEE DEE AND WACCAMAW RIVERS

Water Quality Data

Spreadsheet Legend

Station Information:

STATION NUMBER Station ID

TYPE SCDHEC station type code

P = Primary station, sampled monthly all year round

S = Secondary station, sampled monthly May - October

P* = Secondary station upgraded to primary station parameter coverage and sampling frequency for basin study

W = Special watershed station added for the Pee Dee River Basin study

BIO = Indicates macroinvertebrate community data assessed

WATERBODY NAME Stream or Lake Name

CLASS Stream classification at the point where monitoring station is located

Parameter Abbreviations and Parameter Measurement Units:

DO	Dissolved Oxygen (mg/l)	NH3	Ammonia (mg/l)
BOD	Five-Day Biochemical Oxygen Demand (mg/l)	CD	Cadmium (ug/l)
pH	pH (SU)	CR	Chromium (ug/l)
TP	Total Phosphorus (mg/l)	CU	Copper (ug/l)
TN	Total Nitrogen (mg/l)	PB	Lead (ug/l)
TURB	Turbidity (NTU)	HG	Mercury (ug/l)
TSS	Total Suspended Solids (mg/l)	NI	Nickel (ug/l)
BACT	Fecal Coliform Bacteria (#/100 ml)	ZN	Zinc (ug/l)

Statistical Abbreviations:

N For standards compliance, number of surface samples collected between January, 1994 and December, 1998.
For trends, number of surface samples collected between January, 1984 and December, 1998.
For total phosphorus, an additional trend period of January, 1992 to December, 1998 is also reported.

EXC. Number of samples contravening the appropriate standard

% Percentage of samples contravening the appropriate standard

MEAN EXC. Mean of samples which contravened the applied standard

MED For heavy metals with a human health criterion, this is the median of all surface samples between January, 1994 and December, 1998. DL indicates that the median was the detection limit.

MAG Magnitude of any statistically significant trend, average change per year, expressed in parameter measurement units

GEO MEAN Geometric mean of fecal coliform bacteria samples collected between January, 1994 and December, 1998

Key to Trends:

D Statistically significant decreasing trend in parameter concentration

I Statistically significant increasing trend in parameter concentration

* No statistically significant trend

Blank Insufficient data to test for long term trends

Water Quality Summary - Waccamaw River/AIWW Basin

STATION			FIRST		DO	DO	DO	MEAN	TRENDS (84-98)							pH	pH	pH	MEAN	TRENDS (84-98)		
NUMBER	TYPE	WATERBODY NAME	CLASS		N	EXC.	%	EXC.	DO	N	MAG	BOD	N	MAG		N	EXC.	%	EXC.	PH	N	MAG
03040206130																						
MD-158	S	CRAB TREE SWAMP	FW		18	14	78	3.711	I	75	0.067	D	73	-0.057		18	0	0	0	*	74	
MD-107	P*	KINGSTON LAKE	FW		34	23	68	4.024	*	94		*	92			34	3	9	5.633	I	93	0.025
03040206090																						
MD-124	P	WACCAMAW RVR	FW*		58	4	7	2.487	D	170	-0.050	D	168	-0.023		60	0	0	0	I	172	0.040
03040206100																						
PD-362	PD	BUCK CK	FW		17	1	6	4.6								18	1	6	5.8			
03040206110																						
PD-363	PD	SIMPSON CK	FW		17	0	0	0								18	0	0	0			
03040206140																						
MD-088	S	ICWW	FW		31	21	68	3.357	*	90		*	79			32	5	16	5.69	*	91	
MD-089	S	ICWW	FW		30	22	73	3.511	D	90	-0.050	*	79			31	5	16	5.678	*	91	
MD-127	P	ICWW	FW		59	25	42	3.516	*	179		D	162	-0.025		60	13	22	5.69	*	180	
MD-110	P*	WACCAMAW RVR	FW*		35	3	9	2.033	*	95		D	93	-0.025		35	0	0	0	*	94	
MD-111	S	WACCAMAW RVR	FW*		16	1	6	3.6	I	73	0.045	D	71	-0.033		16	0	0	0	I	72	0.031
MD-136	S	WACCAMAW RVR	FW*		31	11	35	2.555	D	91	-0.050	*	80			32	0	0	0	*	92	
03040206150																						
MD-146	P	WACCAMAW RVR, ICWW	FW*		59	9	15	2.478	D	179	-0.038	D	168	-0.010		60	0	0	0	I	179	0.011
MD-137	S	WACCAMAW RVR	FW*		30	3	10	2.967	D	96	-0.071	*	78			31	0	0	0	*	96	
MD-138	P	WACCAMAW RVR	FW*		59	3	5	2.4	D	129	-0.050	*	117			60	0	0	0	*	130	
03040207020																						
MD-162	P	LITTLE RVR	SA		57	0	0	0	*	169		*	169			59	9	15	6.152	I	171	0.014
MD-125	S	ICWW *	FW		17	2	12	4.6	I	72	0.072	*	72			18	0	0	0	*	73	
MD-125	S	ICWW	SA		17	2	12	4.6	I	72	0.072	*	72			18	5	28	5.224	*	73	
MD-091	S	ICWW	FW		29	17	59	3.518	D	88	-0.050	*	79			32	3	9	5.767	*	91	
MD-085	S	ICWW	FW		32	20	63	4.9	*	88		*	80			33	4	12	5.81	*	89	
MD-087	P	ICWW	FW		60	22	37	3.605	*	124		*	113			61	5	8	5.748	*	125	
03040207030																						
MD-075	P	SAMPIT RVR	SB		64	14	22	3.35	D	181	-0.025	D	168	-0.015		63	6	10	6.263	*	181	
MD-076N	S	TURKEY CK	FW		18	4	22	4	*	72		I	71	0.038		18	1	6	5.87	I	72	0.033
MD-149	P	WHITES CK	FW		63	19	30	3.784	*	183		D	165	-0.029		63	0	0	0	*	184	
MD-149	P	WHITES CK	SB		63	11	17	3.3	*	183		D	165	-0.029		63	7	11	6.219	*	184	
MD-077	P	SAMPIT RVR	SB		64	4	6	3.35	*	182		D	169	-0.025		63	6	10	5.448	D	181	-0.014
MD-073	P	SAMPIT RVR	SB		63	3	5	3.1	D	180	-0.043	D	167	-0.011		63	4	6	6.317	D	181	-0.017
MD-074	P*	SAMPIT RVR	SB		39	1	3	3.7	*	98		*	92			39	3	8	6.223	*	99	
03040207050																						
MD-080	P	WINYAH BAY	SB		63	2	3	2.65	D	182	-0.043	*	168			63	6	10	6.295	*	182	

Water Quality Summary - Waccamaw River/AIWW Basin

STATION			FIRST	TRENDS (92-98)			TRENDS (84-98)											
NUMBER	TYPE	WATERBODY NAME	CLASS	TP	N	MAG	TP	N	MAG	TN	N	MAG	TURB	N	MAG	TSS	N	MAG
03040206130																		
MD-158	S	CRAB TREE SWAMP	FW				D	72	-0.002				*	74				
MD-107	P*	KINGSTON LAKE	FW	*	42		*	90					*	92				
03040206090																		
MD-124	P	WACCAMAW RVR	FW*	*	70		D	162	0.000	*	161		*	170				
03040206100																		
PD-362	PD	BUCK CK	FW															
03040206110																		
PD-363	PD	SIMPSON CK	FW															
03040206140																		
MD-088	S	ICWW	FW	*	39		*	85					D	82	-0.155			
MD-089	S	ICWW	FW	*	38		D	83	-0.001				*	80				
MD-127	P	ICWW	FW	*	75		D	167	-0.001	D	165	-0.013	*	168				
MD-110	P*	WACCAMAW RVR	FW*	*	42		D	90	-0.001				*	95				
MD-111	S	WACCAMAW RVR	FW*				D	68	-0.002				I	72	0.183			
MD-136	S	WACCAMAW RVR	FW*	*	39		*	85					*	82				
03040206150																		
MD-146	P	WACCAMAW RVR, ICWW	FW*	*	70		D	164	-0.001	D	164	-0.009	*	170				
MD-137	S	WACCAMAW RVR	FW*	*	38		*	88					D	84	-0.113			
MD-138	P	WACCAMAW RVR	FW*	*	68		*	118		*	72		*	123				
03040207020																		
MD-162	P	LITTLE RVR	SA	*	63		D	154	-0.003	D	154	-0.026	*	170				
MD-125	S	ICWW *	FW				D	68	-0.003				*	72				
MD-125	S	ICWW	SA				D	68	-0.003				*	72				
MD-091	S	ICWW	FW	*	39		*	85					*	80				
MD-085	S	ICWW	FW	*	39		D	85	-0.001				*	82				
MD-087	P	ICWW	FW	*	68		*	144		*	67		*	116				
03040207030																		
MD-075	P	SAMPIT RVR	SB	*	73		*	166		D	165	-0.015	I	169	0.033			
MD-076N	S	TURKEY CK	FW				D	65	0.000				*	72				
MD-149	P	WHITES CK	FW	*	77		D	168	-0.002	D	164	-0.020	I	168	0.246			
MD-149	P	WHITES CK	SB	*	77		D	168	-0.002	D	164	-0.020	I	168	0.246			
MD-077	P	SAMPIT RVR	SB	*	76		*	166		D	165	-0.018	I	170	0.273			
MD-073	P	SAMPIT RVR	SB	*	78		D	167	-0.001	D	166	-0.020	*	163				
MD-074	P*	SAMPIT RVR	SB	*	45		*	91					*	93				
03040207050																		
MD-080	P	WINYAH BAY	SB	*	77		D	169	-0.001	D	167	-0.015	*	168		D	162	-0.274

Water Quality Summary - Waccamaw River/AIWW Basin

STATION NUMBER	TYPE	WATERBODY NAME	FIRST CLASS	GEO MEAN	BACT N	BACT EXC.	BACT %	MEAN EXC.	TRENDS (84-98) BACT	TRENDS (84-98) N	TRENDS (84-98) MAG	NH3 N	NH3 EXC.	CD N	CD EXC.	CD MED.	CD %
03040206130																	
MD-158	S	CRAB TREE SWAMP	FW	203.306	18	7	39	1134	*	73							
MD-107	P*	KINGSTON LAKE	FW	301.612	34	12	35	1950	*	92		16	0	4	0	DL	0
03040206090																	
MD-124	P	WACCAMAW RVR	FW*	57.2074	60	1	2	800	I	186	2.000	58	0	19	0	DL	0
03040206100																	
PD-362	PD	BUCK CK	FW	53.2814	18	0	0	0				18	0	5	0	DL	0
03040206110																	
PD-363	PD	SIMPSON CK	FW	95.2954	18	0	0	0				18	0	5	0	DL	0
03040206140																	
MD-088	S	ICWW	FW	208.539	30	12	40	3836	D	81	-87.385						
MD-089	S	ICWW	FW	68.9145	28	3	11	1933	D	79	-5.042						
MD-127	P	ICWW	FW	38.231	59	0	0	0	*	172		58	0	19	0	DL	0
MD-110	P*	WACCAMAW RVR	FW*	52.7212	34	3	9	1200	*	93		17	0	5	0	DL	0
MD-111	S	WACCAMAW RVR	FW*	100.487	16	3	19	7266	*	71							
MD-136	S	WACCAMAW RVR	FW*	23.9826	30	0	0	0	*	81							
03040206150																	
MD-146	P	WACCAMAW RVR, ICWW	FW*	35.3389	60	0	0	0	*	170		56	0	20	0	DL	0
MD-137	S	WACCAMAW RVR	FW*	20.0591	29	0	0	0	*	85		1	0				
MD-138	P	WACCAMAW RVR	FW*	38.5281	60	0	0	0	*	122		53	0	18	0	DL	0
03040207020																	
MD-162	P	LITTLE RVR	SA	74.5968	59	4	7	568	D	172	-10.000	55	0	19	0	DL	0
MD-125	S	ICWW *	FW	89.7438	18	1	6	430	*	72							
MD-125	S	ICWW	SA	89.7438	18	1	6	430	*	72							
MD-091	S	ICWW	FW	136.675	29	9	31	1531	D	79	-57.500						
MD-085	S	ICWW	FW	167.746	30	10	33	2410	D	79	-75.000						
MD-087	P	ICWW	FW	192.259	58	20	34	2330	D	115	-100.000	55	0	19	0	DL	0
03040207030																	
MD-075	P	SAMPIT RVR	SB	37.2952	60	1	2	500	*	166		55	0	19	0	DL	0
MD-076N	S	TURKEY CK	FW	162.29	18	2	11	2110	I	72	6.333	1	0				
MD-149	P	WHITES CK	FW	42.4485	57	1	2	700	*	163		58	0	20	0	DL	0
MD-149	P	WHITES CK	SB		57	1	2	700	*	163		58	0	20	0	DL	0
MD-077	P	SAMPIT RVR	SB	35.6437	59	0	0	0	*	166		58	0	20	0	DL	0
MD-073	P	SAMPIT RVR	SB	43.7186	60	0	0	0	*	166		59	0	20	0	DL	0
MD-074	P*	SAMPIT RVR	SB	39.7566	37	0	0	0	*	92		15	0	4	0	DL	0
03040207050																	
MD-080	P	WINYAH BAY	SB	36.497	59	0	0	0	D	166	-0.558	59	0	20	0	DL	0

Water Quality Summary - Waccamaw River/AIWW Basin

STATION			FIRST	CR	CR	CR	CR	CU	CU	CU	PB	PB	PB	PB	HG	HG	HG	HG
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	MED.	%	N	EXC.	%	N	EXC.	MED.	%	N	EXC.	MED.	%
03040206130																		
MD-158	S	CRAB TREE SWAMP	FW															
MD-107	P*	KINGSTON LAKE	FW	4	0	DL	0	4	0	0	4	0	DL	0	4	0	DL	0
03040206090																		
MD-124	P	WACCAMAW RVR	FW*	18	2	DL	11	19	3	16	19	0	DL	0	18	0	DL	0
03040206100																		
PD-362	PD	BUCK CK	FW	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040206110																		
PD-363	PD	SIMPSON CK	FW	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
03040206140																		
MD-088	S	ICWW	FW															
MD-089	S	ICWW	FW															
MD-127	P	ICWW	FW	19	0	DL	0	19	0	0	19	0	DL	0	19	0	DL	0
MD-110	P*	WACCAMAW RVR	FW*	5	0	DL	0	5	0	0	5	0	DL	0	5	0	DL	0
MD-111	S	WACCAMAW RVR	FW*															
MD-136	S	WACCAMAW RVR	FW*															
03040206150																		
MD-146	P	WACCAMAW RVR, ICWW	FW*	20	0	DL	0	20	1	5	20	0	DL	0	20	0	DL	0
MD-137	S	WACCAMAW RVR	FW*															
MD-138	P	WACCAMAW RVR	FW*	18	0	DL	0	18	0	0	18	0	DL	0	18	0	DL	0
03040207020																		
MD-162	P	LITTLE RVR	SA	19	0	DL	0	19	2	11	19	0	DL	0	19	0	DL	0
MD-125	S	ICWW *	FW															
MD-125	S	ICWW	SA															
MD-091	S	ICWW	FW															
MD-085	S	ICWW	FW															
MD-087	P	ICWW	FW	19	0	DL	0	19	1	5	19	0	DL	0	19	0	DL	0
03040207030																		
MD-075	P	SAMPIT RVR	SB	19	0	DL	0	19	0	0	19	0	DL	0	19	0	DL	0
MD-076N	S	TURKEY CK	FW															
MD-149	P	WHITES CK	FW	20	0	DL	0	20	0	0	20	0	DL	0	20	0	DL	0
MD-149	P	WHITES CK	SB	20	0	DL	0	20	0	0	20	0	DL	0	20	0	DL	0
MD-077	P	SAMPIT RVR	SB	20	0	DL	0	20	0	0	20	0	DL	0	20	0	DL	0
MD-073	P	SAMPIT RVR	SB	20	0	DL	0	20	0	0	20	0	DL	0	20	0	DL	0
MD-074	P*	SAMPIT RVR	SB	4	0	DL	0	4	0	0	4	0	DL	0	4	0	DL	0
03040207050																		
MD-080	P	WINYAH BAY	SB	20	0	DL	0	20	0	0	20	0	DL	0	20	0	DL	0

Water Quality Summary - Waccamaw River/AIWW Basin

STATION NUMBER	TYPE	WATERBODY NAME	FIRST CLASS		NI N	NI EXC.	NI %		ZN N	ZN EXC.	ZN %
03040206130											
MD-158	S	CRAB TREE SWAMP	FW								
MD-107	P*	KINGSTON LAKE	FW		4	0	0		4	0	0
03040206090											
MD-124	P	WACCAMAW RVR	FW*		19	0	0		19	2	11
03040206100											
PD-362	PD	BUCK CK	FW		5	0	0		5	0	0
03040206110											
PD-363	PD	SIMPSON CK	FW		5	0	0		5	0	0
03040206140											
MD-088	S	ICWW	FW								
MD-089	S	ICWW	FW								
MD-127	P	ICWW	FW		19	0	0		19	1	5
MD-110	P*	WACCAMAW RVR	FW*		5	0	0		5	0	0
MD-111	S	WACCAMAW RVR	FW*								
MD-136	S	WACCAMAW RVR	FW*								
03040206150											
MD-146	P	WACCAMAW RVR, ICWW	FW*		20	0	0		20	2	10
MD-137	S	WACCAMAW RVR	FW*								
MD-138	P	WACCAMAW RVR	FW*		18	0	0		18	1	6
03040207020											
MD-162	P	LITTLE RVR	SA		19	0	0		19	1	5
MD-125	S	ICWW *	FW								
MD-125	S	ICWW	SA								
MD-091	S	ICWW	FW								
MD-085	S	ICWW	FW								
MD-087	P	ICWW	FW		19	0	0		19	0	0
03040207030											
MD-075	P	SAMPIT RVR	SB		19	0	0		19	0	0
MD-076N	S	TURKEY CK	FW								
MD-149	P	WHITES CK	FW		20	0	0		20	2	10
MD-149	P	WHITES CK	SB		20	0	0		20	2	10
MD-077	P	SAMPIT RVR	SB		20	0	0		20	0	0
MD-073	P	SAMPIT RVR	SB		20	0	0		20	1	5
MD-074	P*	SAMPIT RVR	SB		4	0	0		4	0	0
03040207050											
MD-080	P	WINYAH BAY	SB		20	0	0		20	0	0

APPENDIX E.

Shellfish Monitoring Stations

Shellfish Monitoring Stations

WATERSHED	STATION	DESCRIPTION
03040207-020	01-01	Little River Jetty
	01-02	Mouth of Dunn Sound Creek
	01-03	AIWW - Marker #9
	01-04	Mouth of Calabash Creek at AIWW
	01-05	Big Bend Up Dunn Sound Creek
	01-06	Bridge to Waites Island
	01-07	Hog Inlet
	01-08	AIWW - Marker #116
	01-09	AIWW - Marker #6
	01-10	AIWW at US. Hwy. 17
	01-11	Dock at Bird Island, N.C. (1968-1998)
	01-12	Clayton Creek at Little River Inlet (1968-1998)
	01-13	Boat Landing at Bonaparte, N.C. (1968-1998)
	01-14	Palmetto Shores Marina Entrance
	01-15	Ocean Drive Outfall at AIWW
	01-16	50 yds N. of Ocean Drive outfall
	01-17	42nd Ave. - Cherry Grove
	01-17A	53rd Ave. Bridge on Canal
	01-18	Dunn Sound at Hog Inlet
	01-19	53rd Ave. at Main Creek
	02-01	White Point Swash
	02-02	Singleton Swash
	02-03	Canepatch Swash
	03-01	Withers Swash
	03-02	Midway Swash - Pebble Beach
	04-01	Main Creek at Atlantic Ave. Bridge
	04-01A	Main Creek at Stanley Drive
	04-02	Main Creek at Mickey Spillane's Home
	04-03	Main Creek at Capt. Dick's Marina

WATERSHED	STATION	DESCRIPTION
03040207-020	04-04	Main Creek at Marlin Quay Marina
	04-05	Murrells Inlet - Range Marker
	04-06	Allston Creek at Weston Flat
	04-07	Allston Creek Pog - Hughes Landing
	04-08	Parsonage Creek at Nance’s Dock
	04-08A	Oyster (Carr) Landing at Huntington Beach State Park
	04-09	Clubhouse Creek at Litchfield Boulevard Bridge
	04-10	Shell Ave. and Pawleys Island Creek
	04-11	North Causeway Bridge at Pawleys Island Creek
	04-12	South Causeway Bridge at Pawleys Island Creek
	04-13	Pawleys Inlet
	04-14	Dock - End of Sportsman Boulevard
	04-15	Midway Inlet
	04-16	Parsonage Creek at Chicken Farm Ditch
	04-17	Parsonage Creek at Voyager View Basin
	04-17A	
	04-18	North Boundary of Clambank Flats POG
	04-19	Clubhouse Creek - First Bend South of Salt Marsh Cove
	04-21	South Pawleys Island Boat Landing
	04-22	Huntington State Park Pond Outfall - 23 Main Creek at Oyster Cove
	04-23	Main Creek at Oyster Cove
	04-24	Oaks Creek at First Curve
	04-25	Main Creek at Flagg Creek
	04-26	Garden City Canal at the “Old Boat Wreck”
	04-27	Main Creek, Opposite Entrance to Mt. Gilead Canal
	04-28	Oaks Creek - Approx. 150 meters from the Huntington State Park Causeway
	04-29	Oyster Cove, South Branch
	04-30	Oyster Cove, North Branch
03040207-040	05-01	Jones Creek at Nancy Creek
	05-02	Noble Slough
	05-03	North Inlet

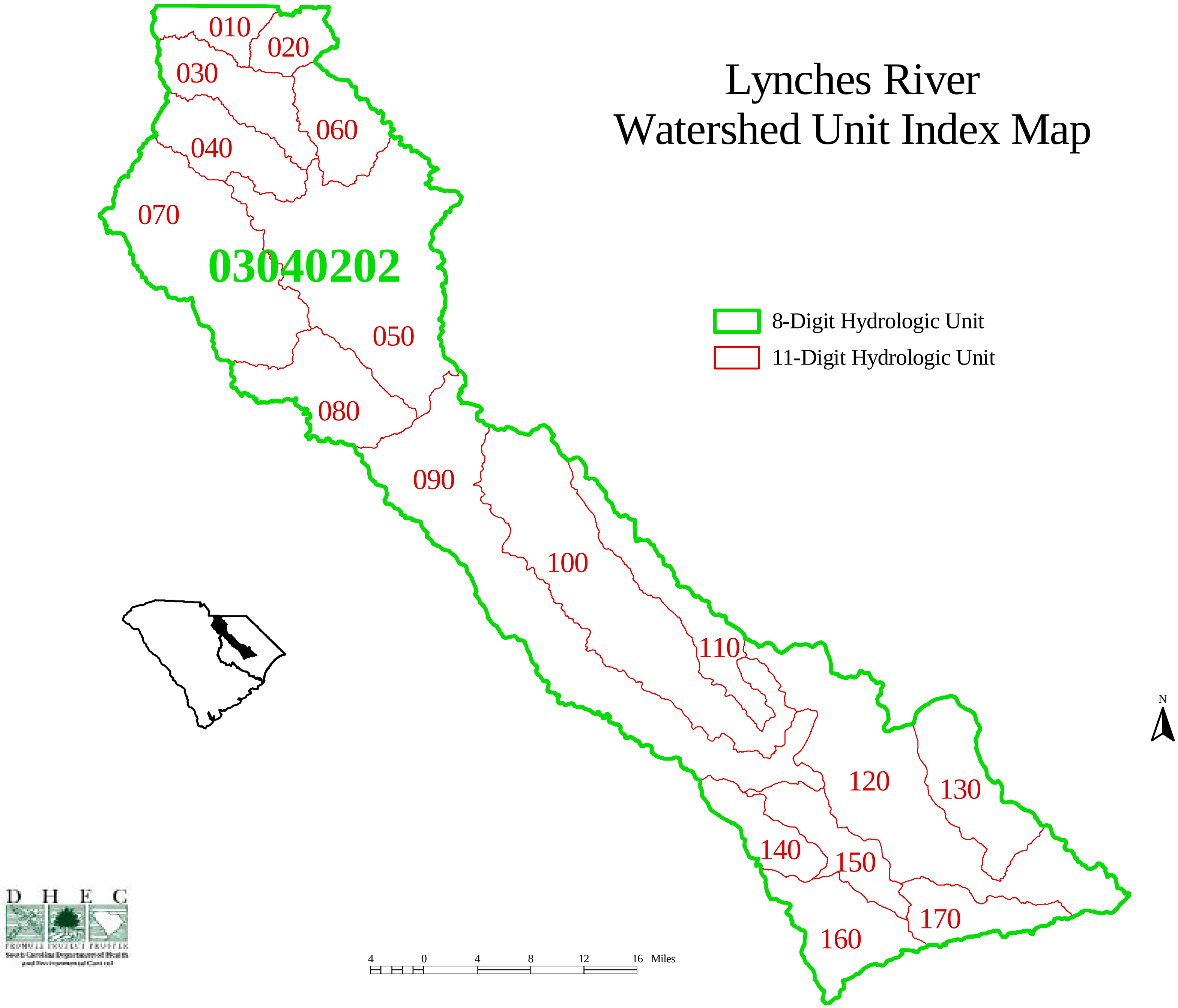
WATERSHED	STATION	DESCRIPTION
03040207-040	05-04	Town Creek at Debidue Creek
	05-05	Oyster Bay near Cutoff Creek
	05-06	No Mans Friend Creek at Mud Bay
	05-07	Jones Creek at Mud Bay
	05-08	Town Creek at Sixty Bass Creek
	05-09	Town Creek at Southern Reach of Clambank Creek
	05-10	Jones Creek at Duck Creek
	05-11	Town Creek at Bread and Butter Creek
	05-12	Old Man Creek and Sea Creek Bay
	05-13	Debidue Creek at Boat Basin
	05-14	Mid Channel Island, Bly Creek
	05-15	Debidue Creek and Cooks Creek
	05-16	Debidue Creek and Bass Hole Bay
	05-20	Winyah Bay Main Channel, Buoy 19a, Range E
	05-21	Winyah Bay Main Channel, Buoy 17, Range E
	05-24	Winyah Bay Main Channel, Coast Guard Dock, Range C
	05-25	Winyah Bay, Tip of Western Channel Island

APPENDIX F.

Watershed Maps

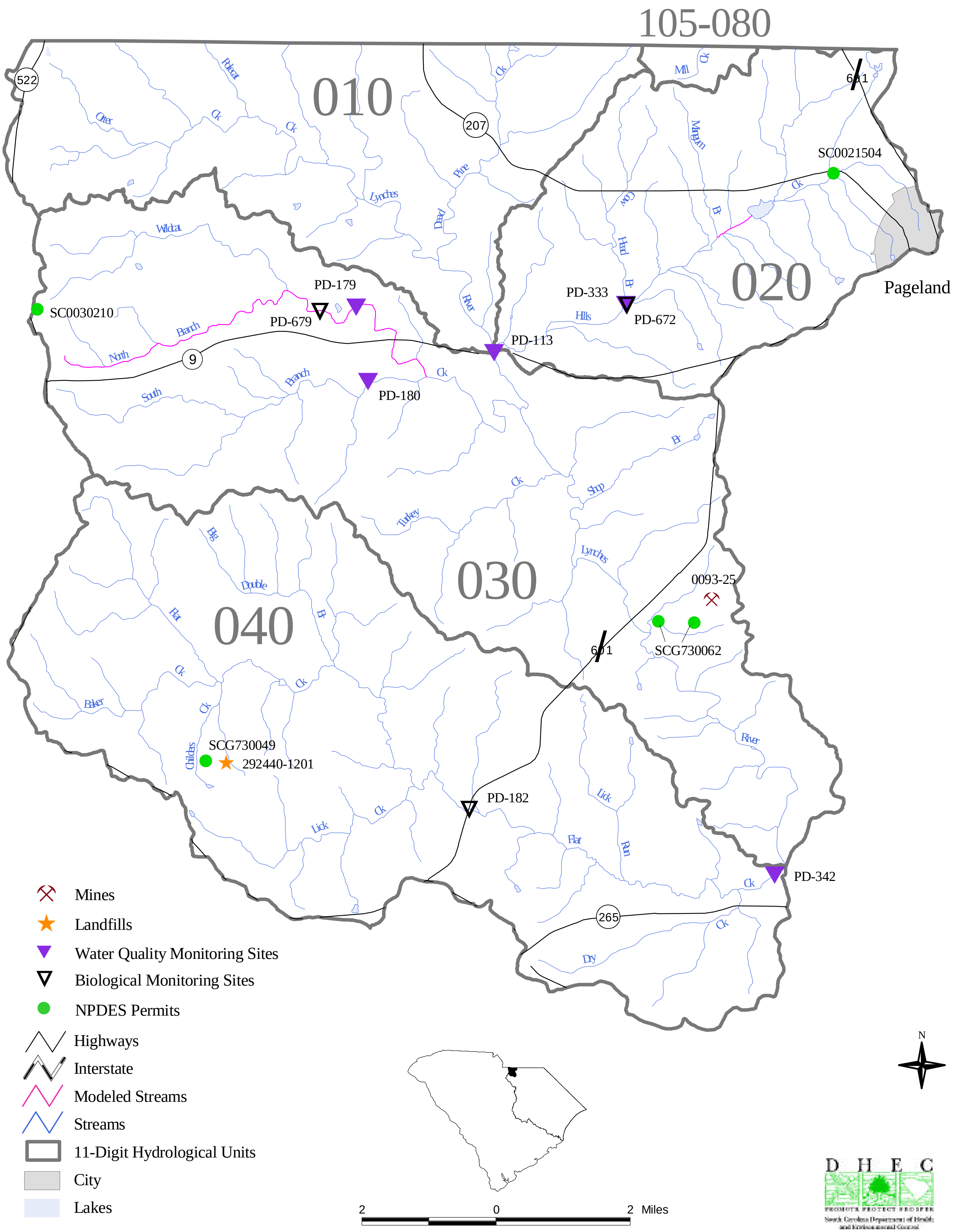
Hydroligic Unit/Watershed	***Waterbody***
03040202	**(Lynches River)**
03040205	**(Black River)**
03040201	**(Pee Dee River)**
03040203	**(Lumber River)**
03040204	**(Little Pee Dee River)**
03040206	**(Waccamaw River)**
03040207	**(AIWW/Winyah Bay)**

Lynches River
Watershed Unit Index Map

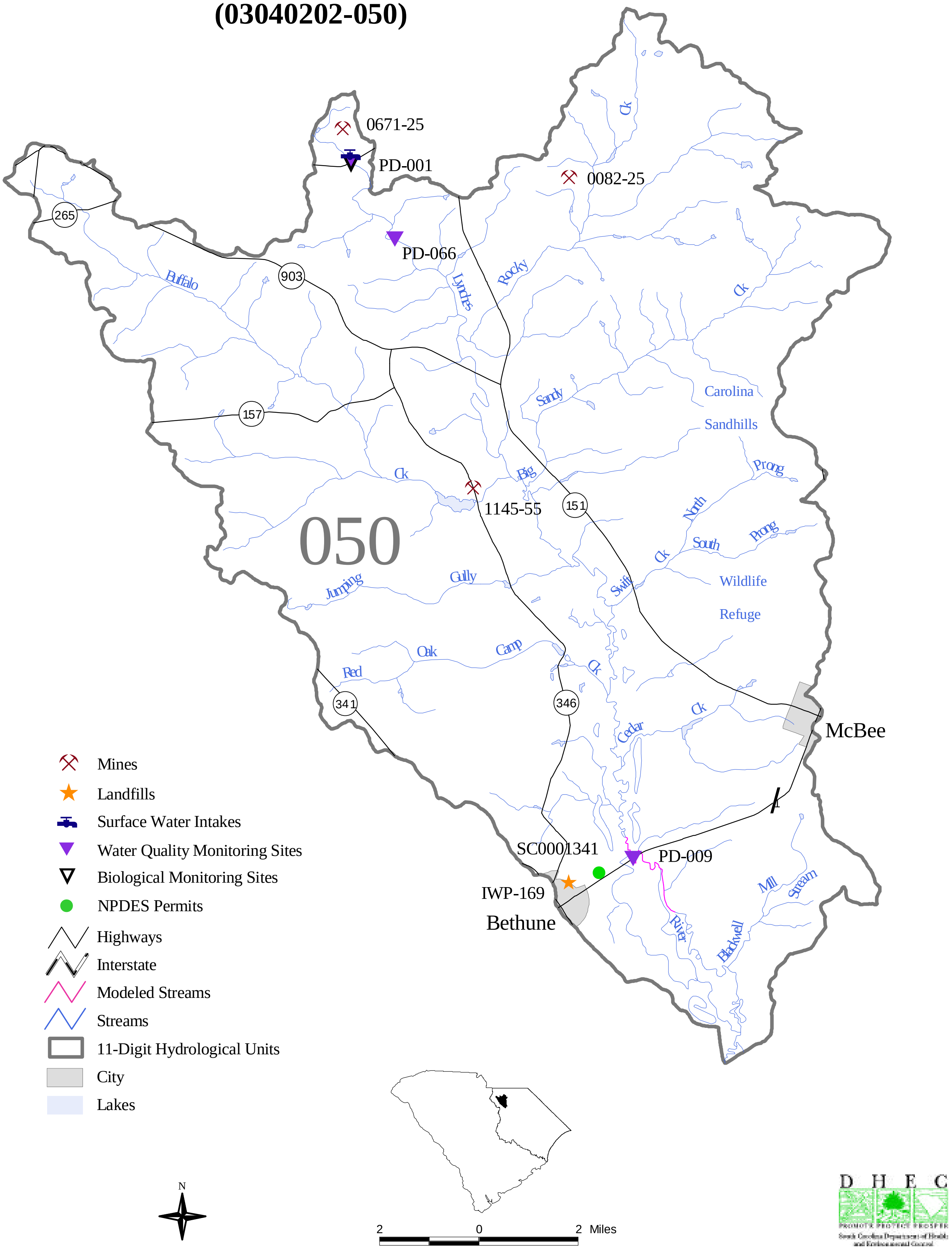


Lynches River Watershed

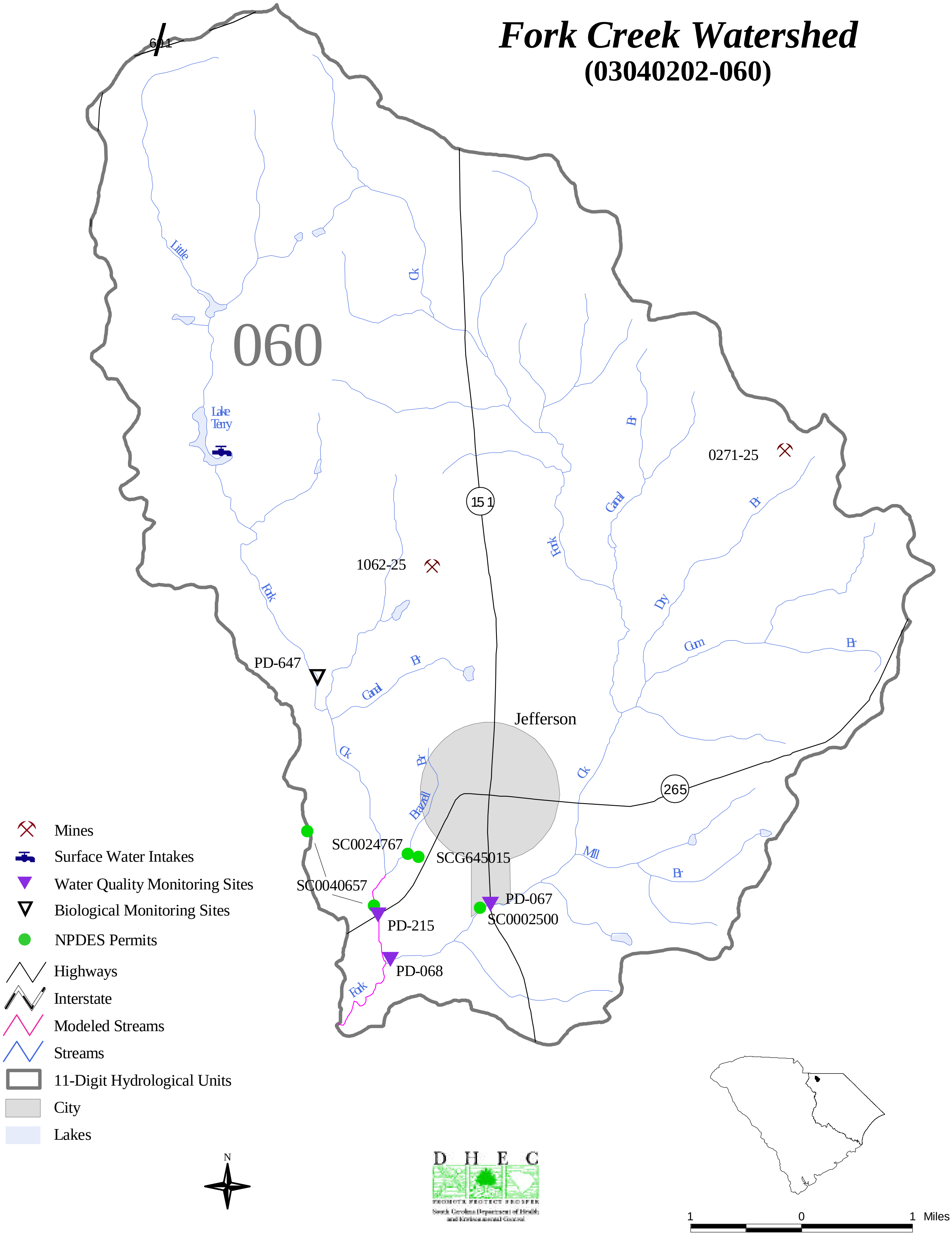
(03040202-010, -020, -030, -040, 03040105-080)



Lynches River Watershed
(03040202-050)

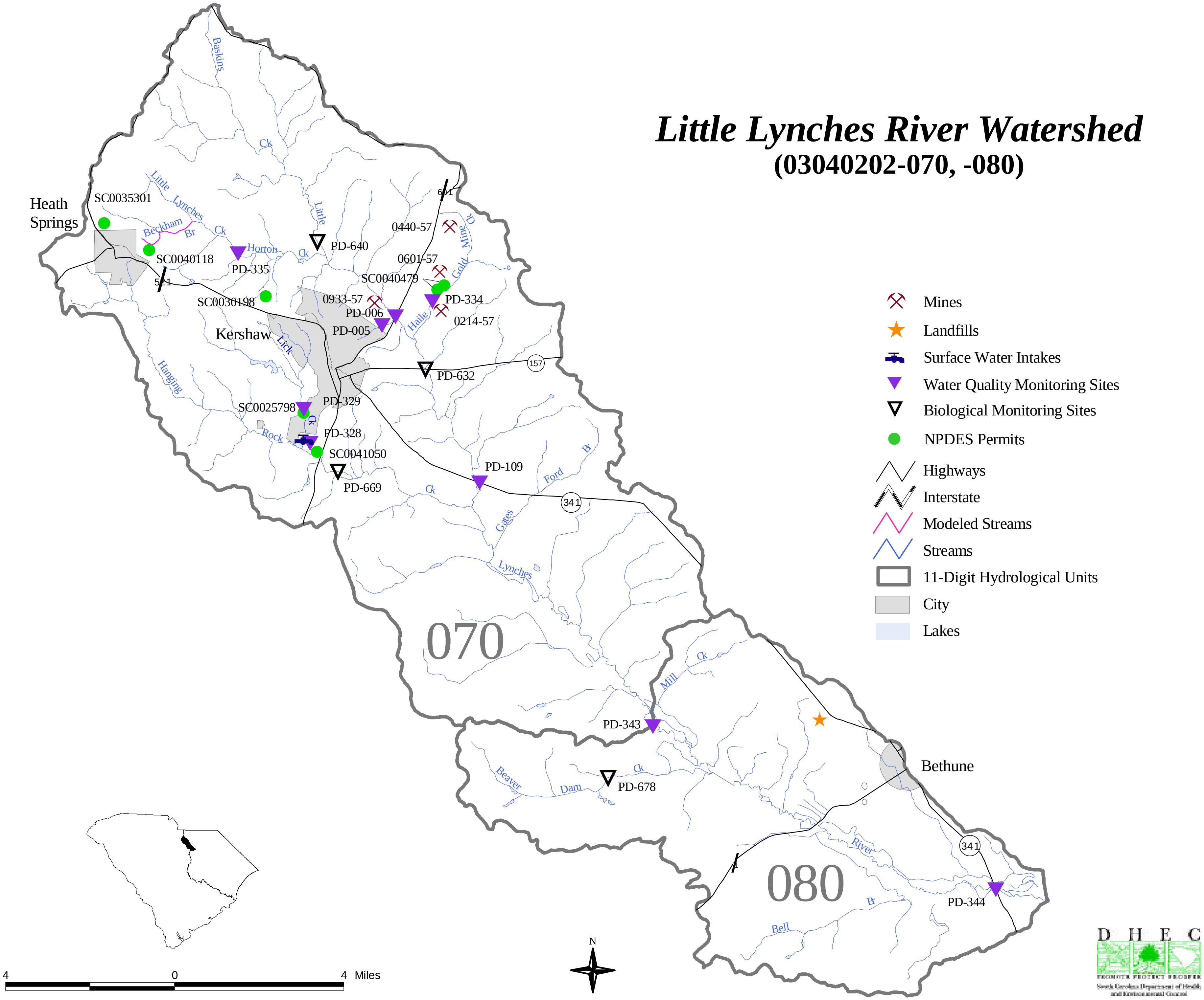


Fork Creek Watershed
(03040202-060)



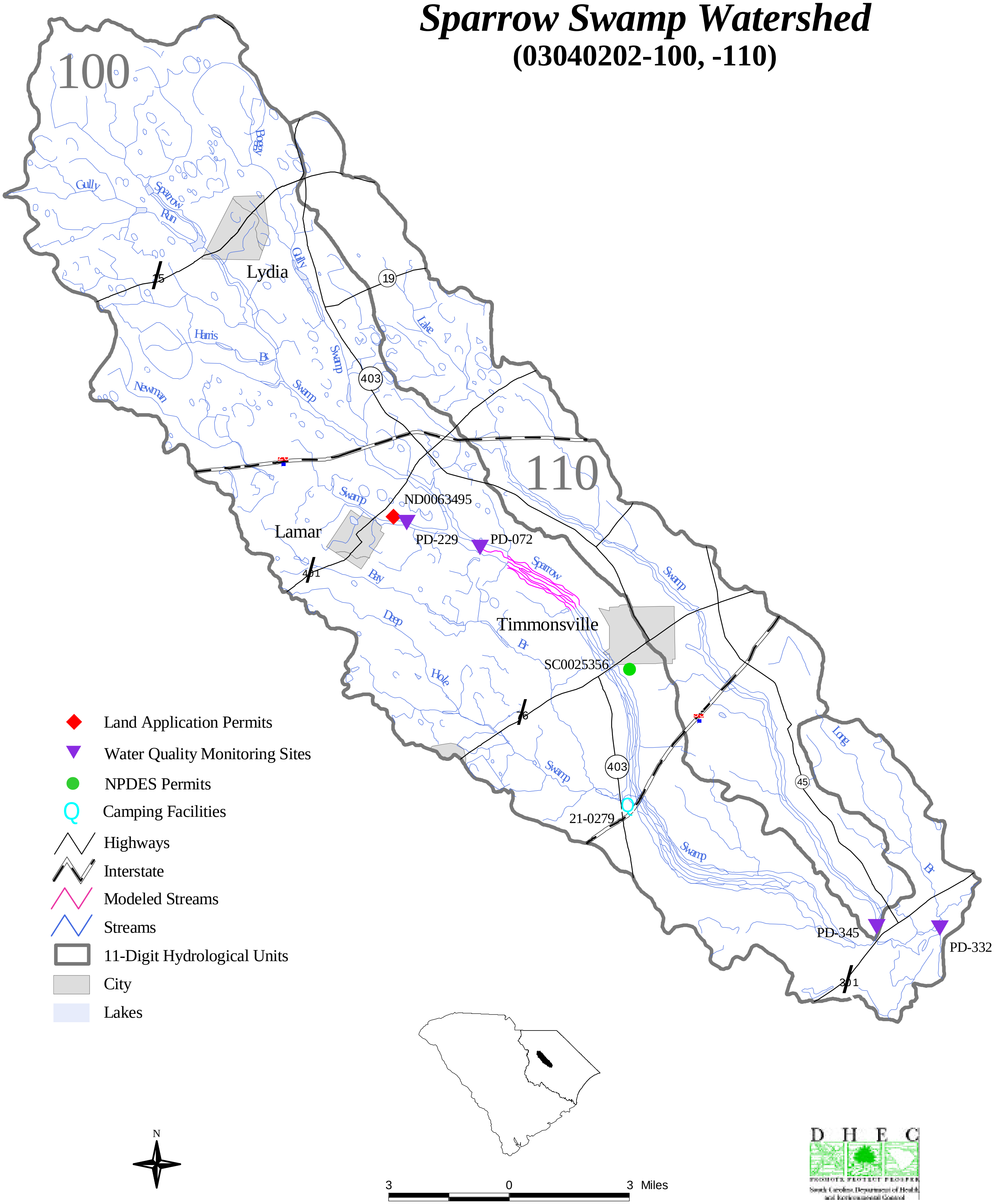
Little Lynches River Watershed

(03040202-070, -080)

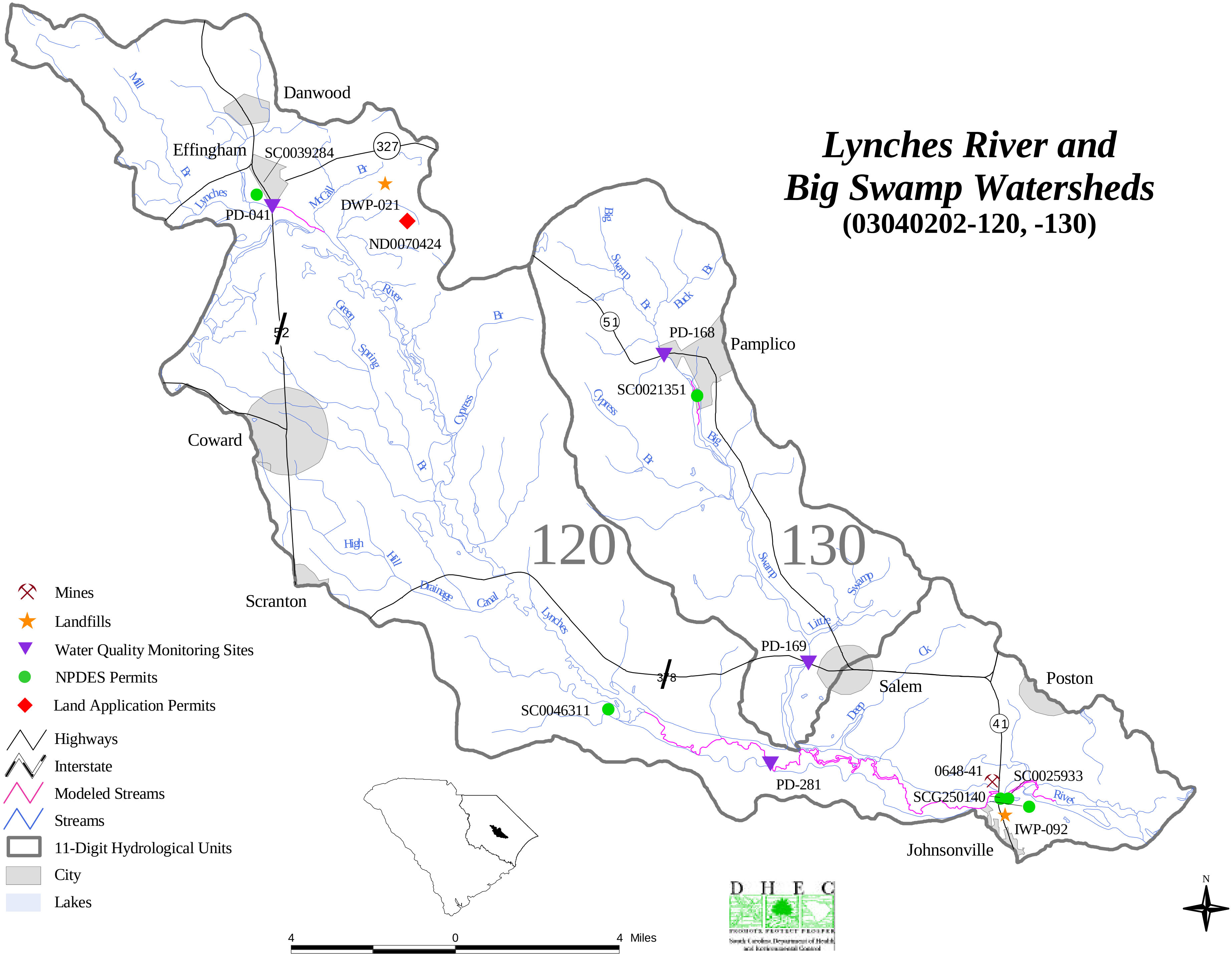


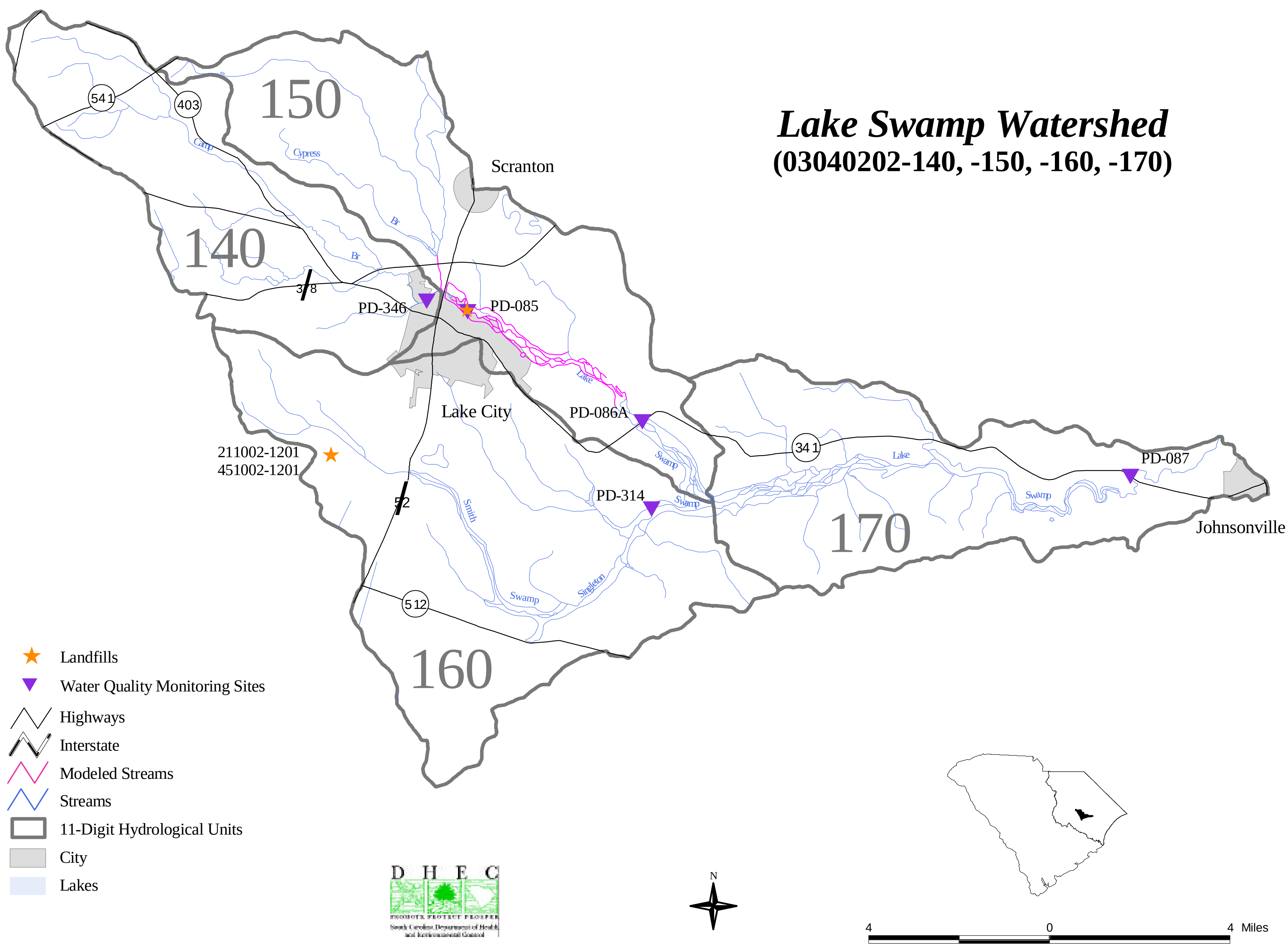
Lynches River Watershed
(03040202-090)

Sparrow Swamp Watershed
(03040202-100, -110)

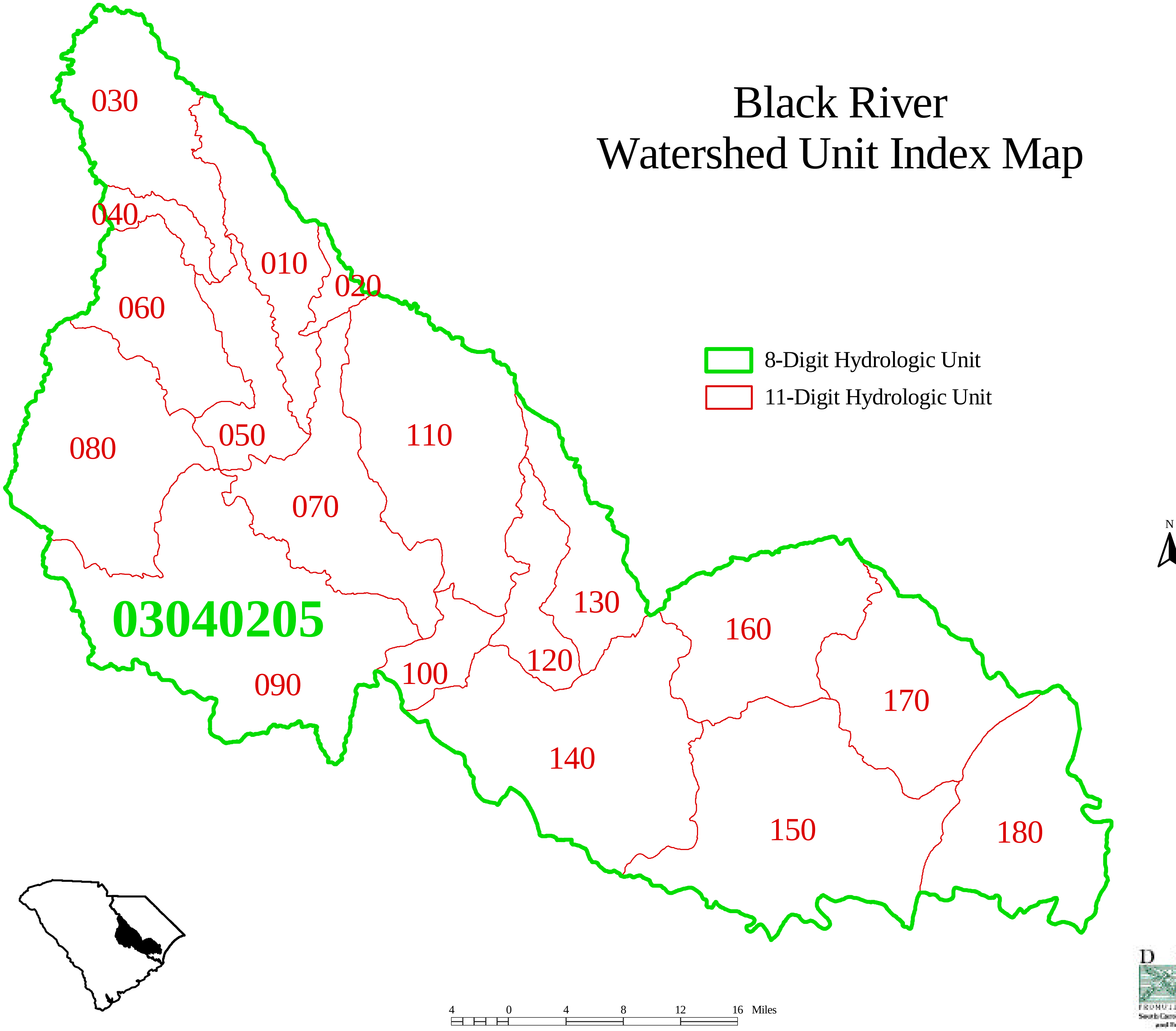


Lynches River and Big Swamp Watersheds
(03040202-120, -130)




Lake Swamp Watershed
(03040202-140, -150, -160, -170)
Scranton
Lake City
Johnsonville
140
150
160
170
PD-346
PD-085
PD-086A
PD-314
PD-087
211002-1201
451002-1201
541
403
341
512
Landfills
Water Quality Monitoring Sites
Highways
Interstate
Modeled Streams
Streams
11-Digit Hydrological Units
City
Lakes
D H E C
N
4
0
4 Miles

Black River
Watershed Unit Index Map

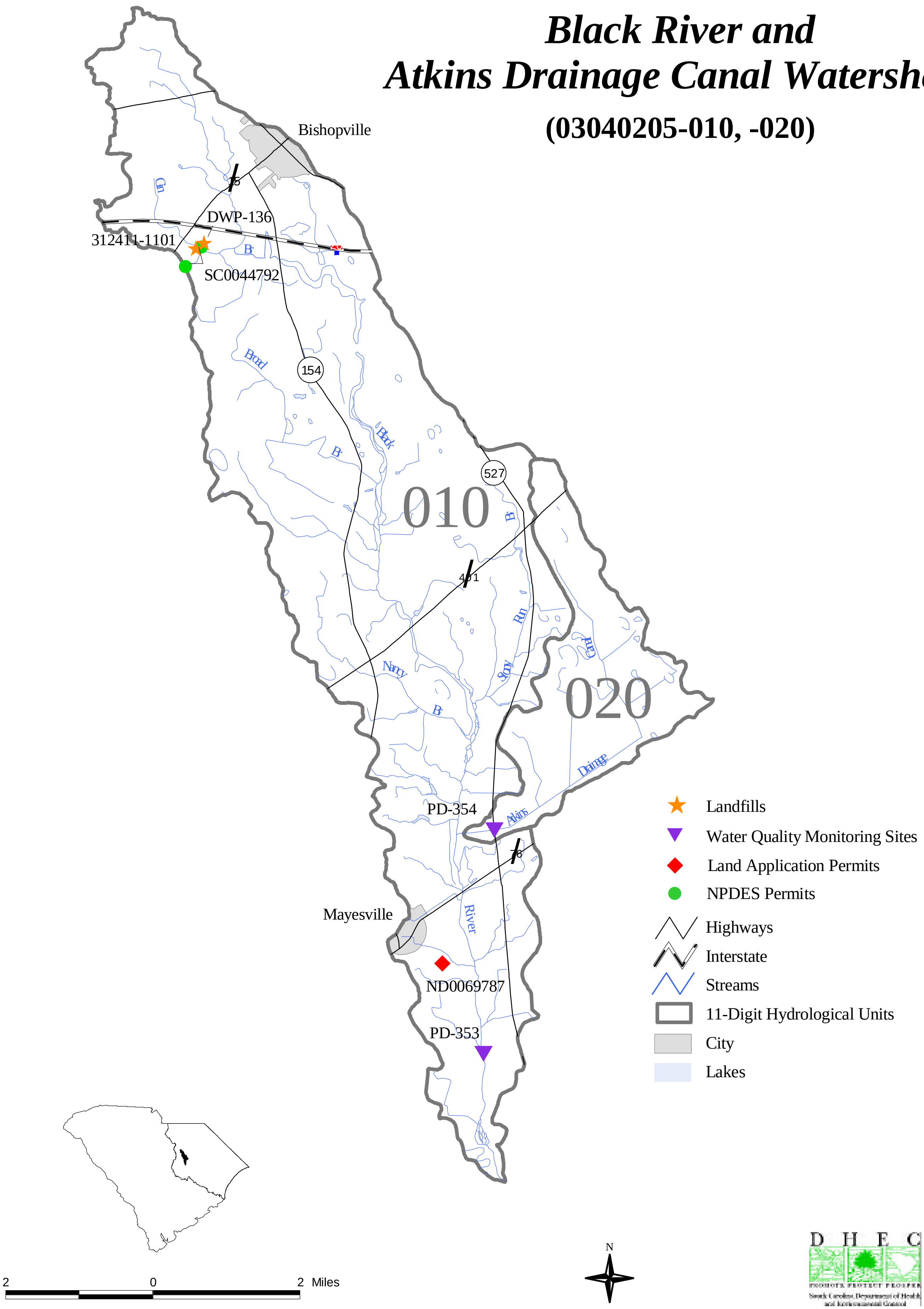


D H E C

South Carolina Department of Health and Environmental Control

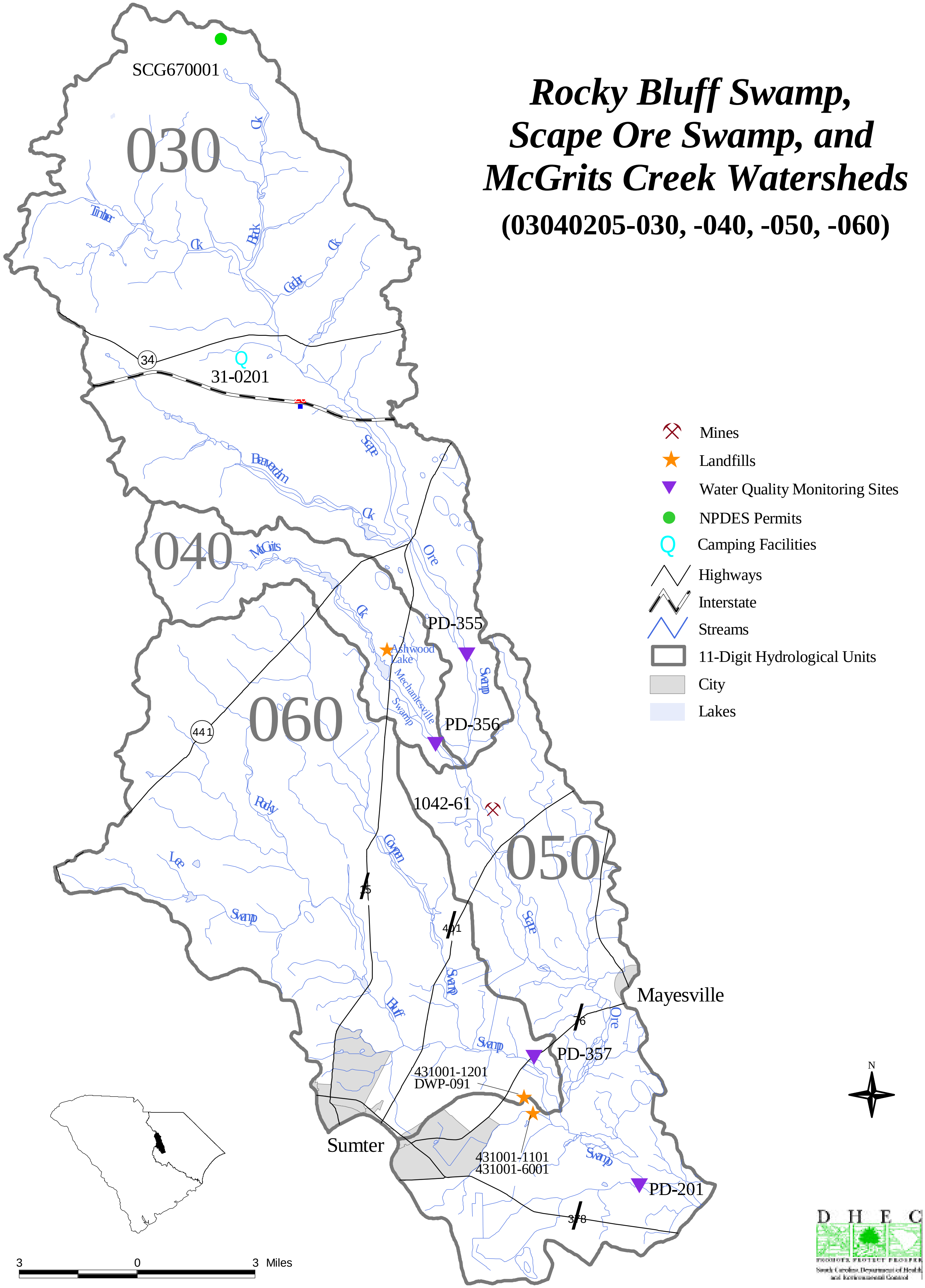
Black River and Atkins Drainage Canal Watersheds

(03040205-010, -020)



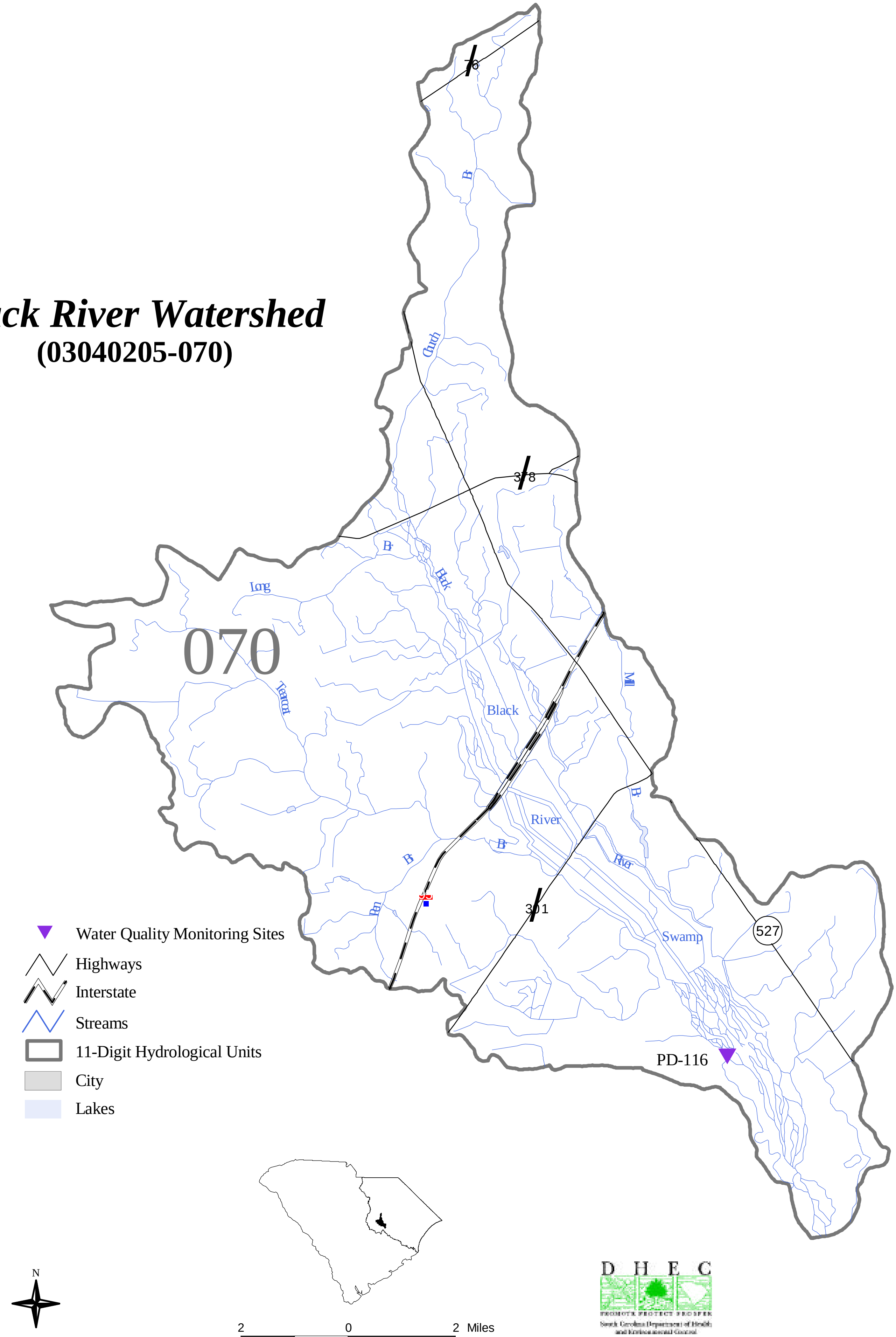
Rocky Bluff Swamp, Scape Ore Swamp, and McGrits Creek Watersheds

(03040205-030, -040, -050, -060)

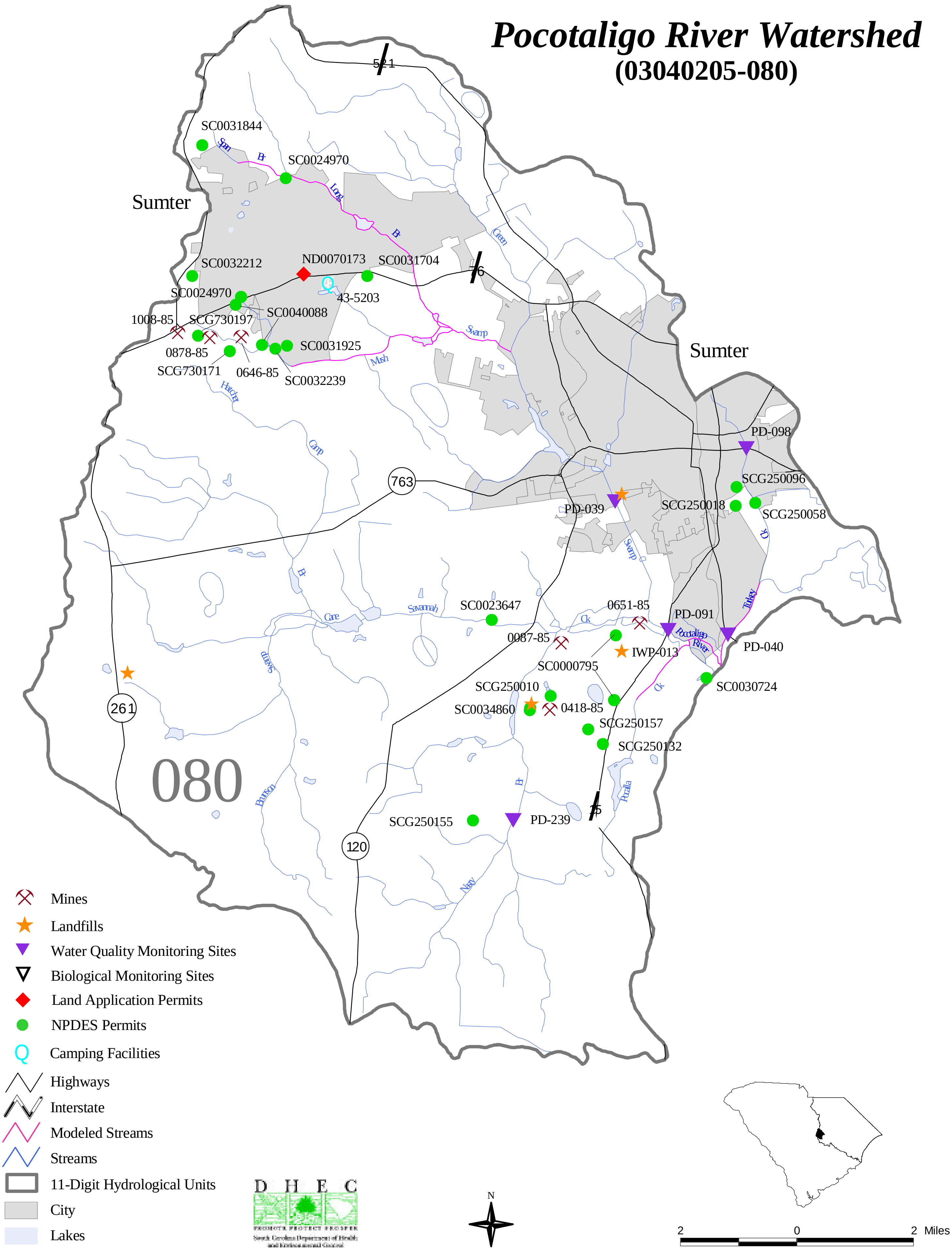


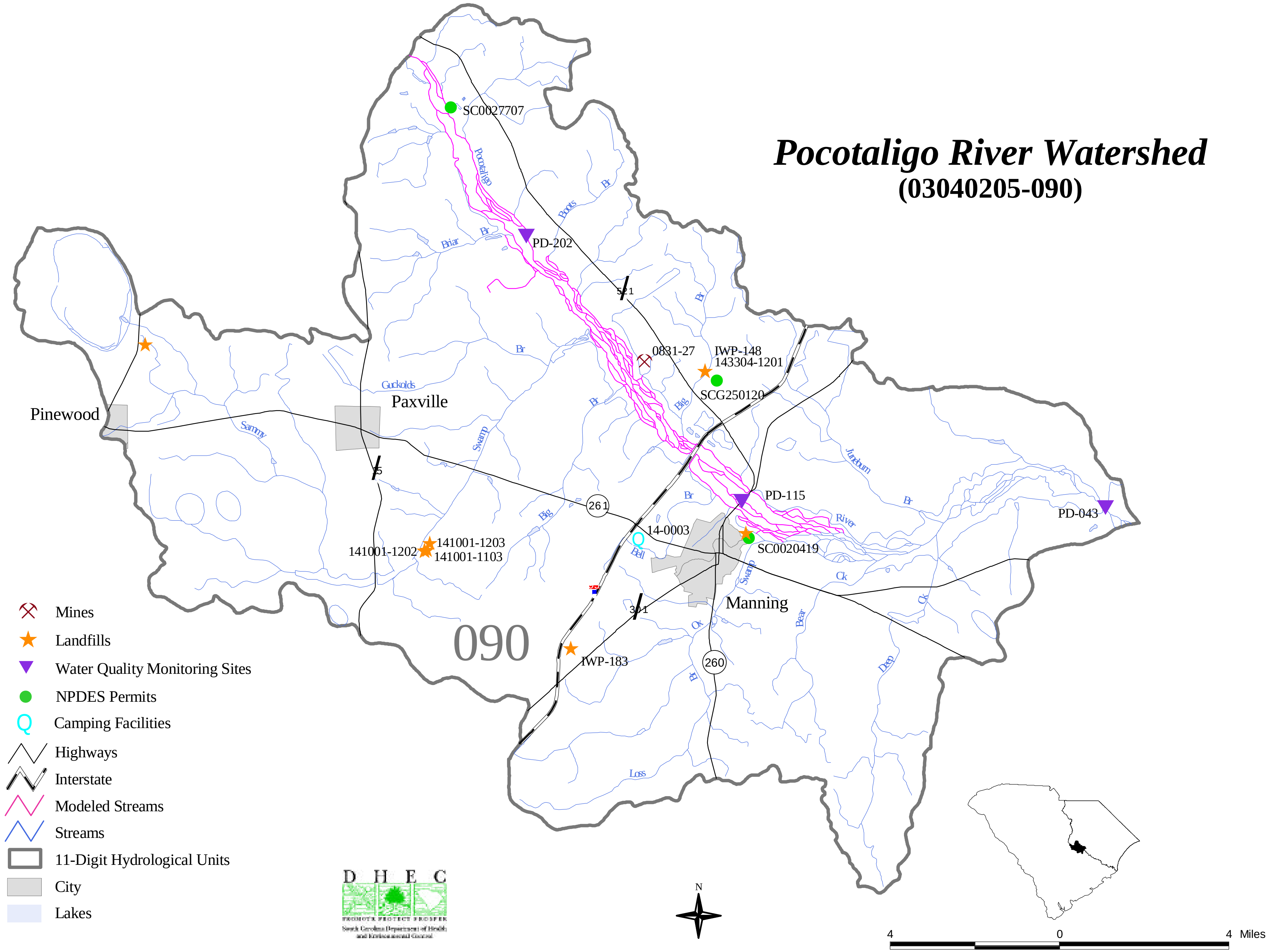
Black River Watershed

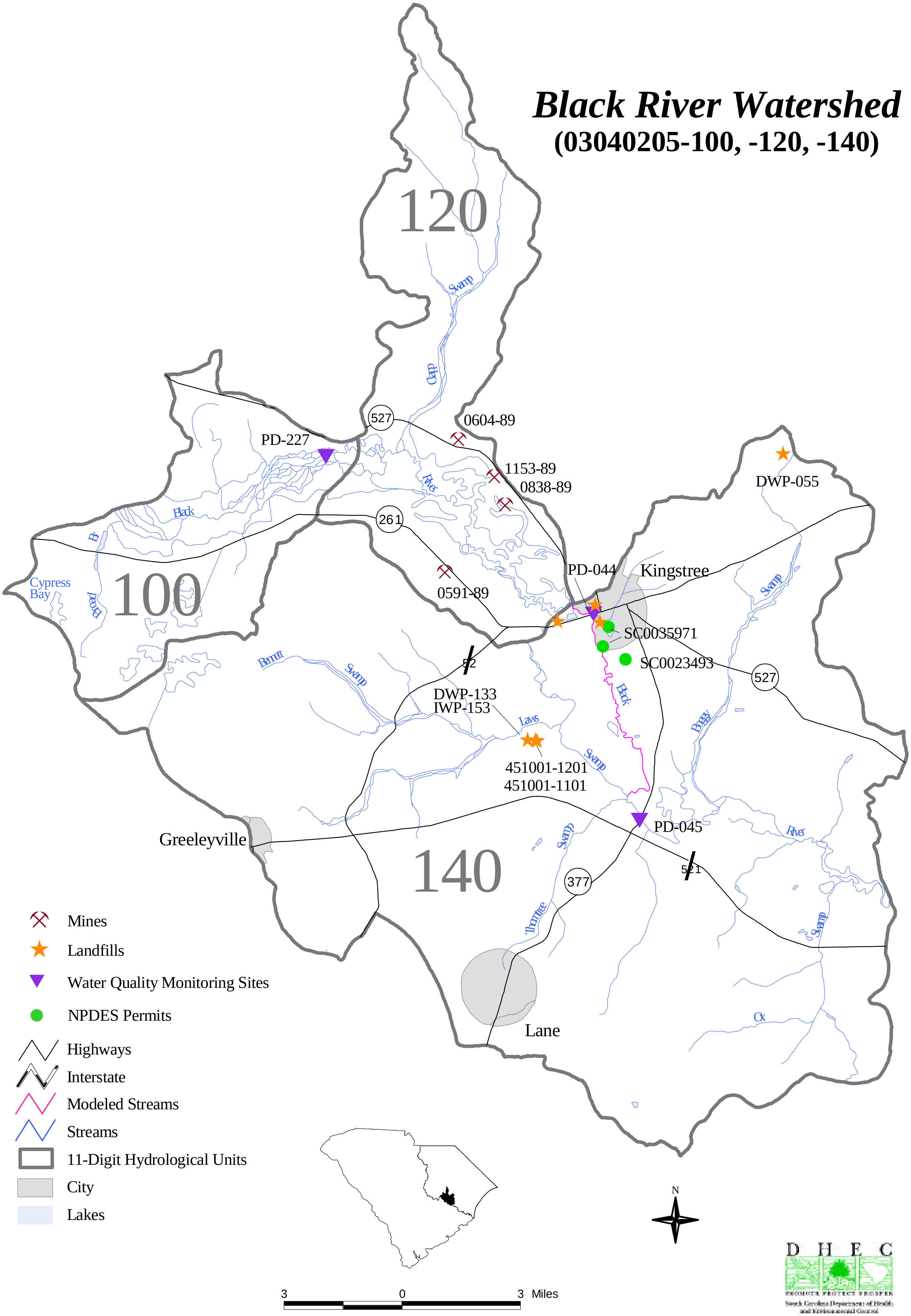
(03040205-070)



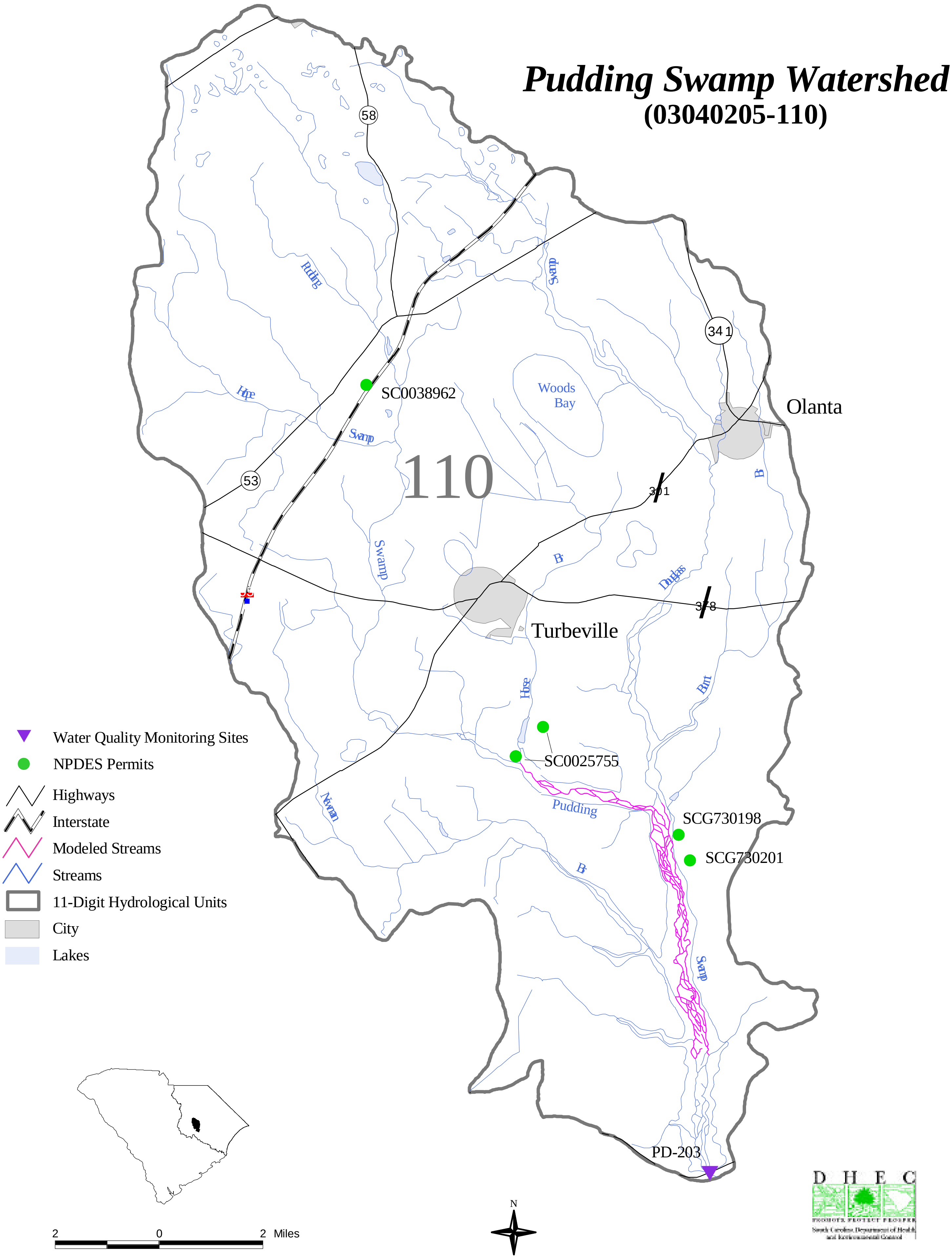
Pocotaligo River Watershed
(03040205-080)



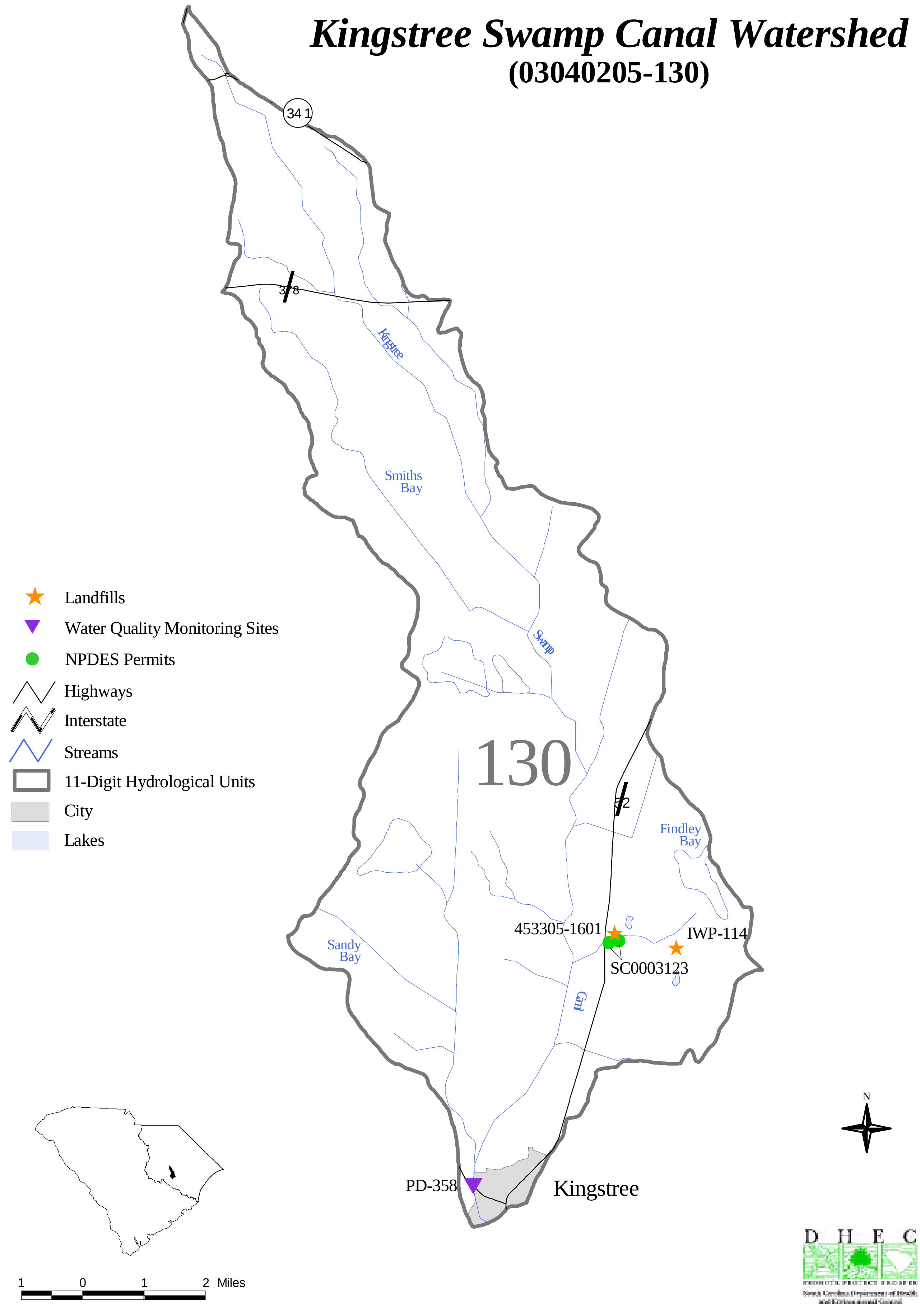

Pocotaligo River Watershed
(03040205-090)
SC0027707
Pocotaligo
Br
Boots
Briar
Br
PD-202
521
Br
Br
0831-27
IWP-148
143304-1201
SCG250120
Guckolds
Paxville
Pinewood
Sammy
Swamp
Br
Big
Junebum
Br
PD-115
PD-043
River
15
261
Br
Big
14-0003
141001-1203
141001-1202
141001-1103
Bell
SC0020419
Swamp
Ck
Manning
301
Ox
Bear
Ck
090
IWP-183
260
Br
Deep
Loss
Mines
Landfills
Water Quality Monitoring Sites
NPDES Permits
Camping Facilities
Highways
Interstate
Modeled Streams
Streams
11-Digit Hydrological Units
City
Lakes
D H E C
N
4
0
4 Miles



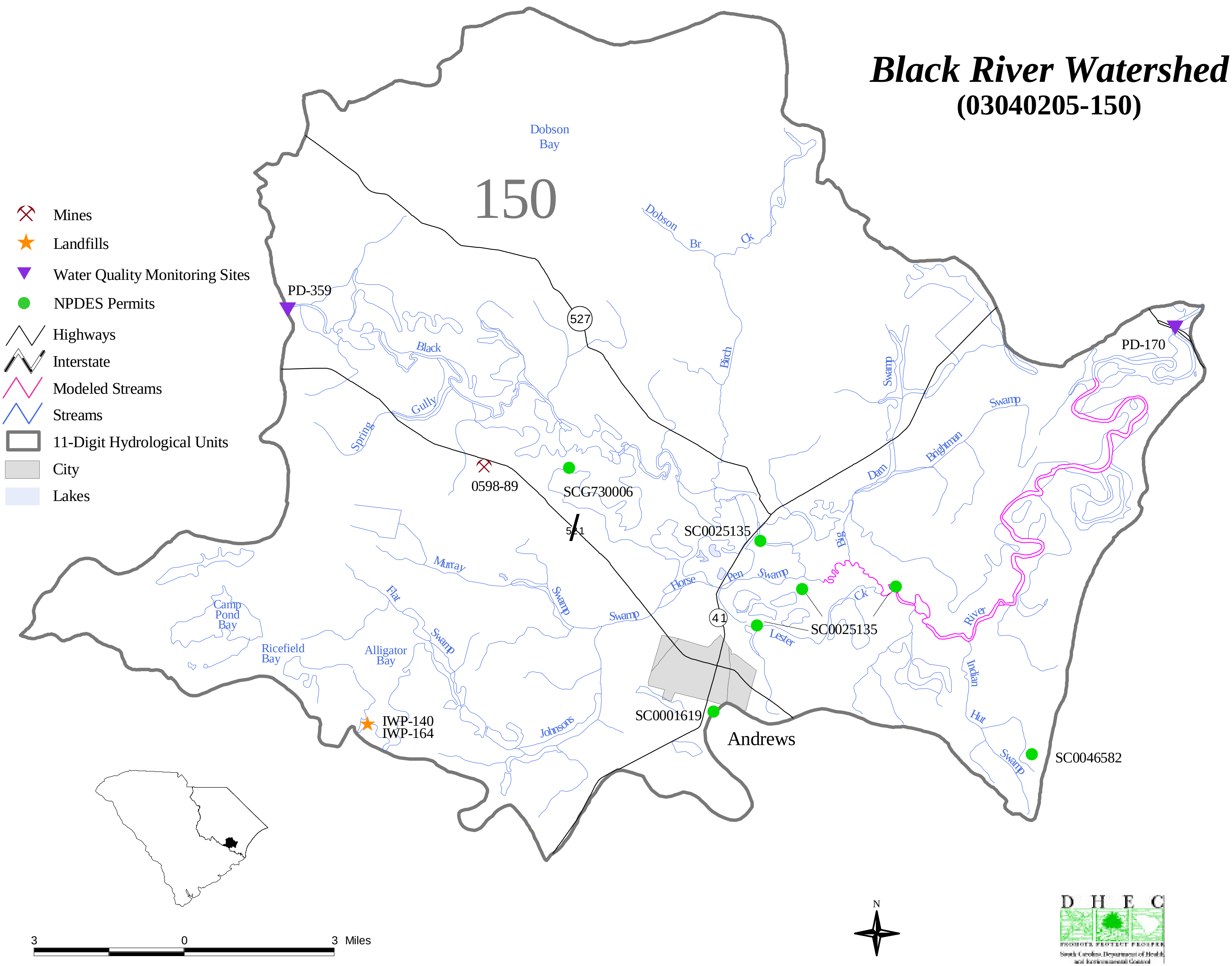
Black River Watershed
(03040205-100, -120, -140)
120
100
140
527
261
52
377
521
0604-89
1153-89
0838-89
0591-89
PD-227
PD-044
PD-045
DWP-055
DWP-133
IWP-153
451001-1201
451001-1101
SC0035971
SC0023493
Kingstree
Greeleyville
Lane
Cypress Bay
Black
River
Swamp
Clapp
Broad
Barrett
Laws
Boggy
Thorntree
Ox
Mines
Landfills
Water Quality Monitoring Sites
NPDES Permits
Highways
Interstate
Modeled Streams
Streams
11-Digit Hydrological Units
City
Lakes
N
3
0
3 Miles
D H E C


Pudding Swamp Watershed
(03040205-110)
58
Pudding
Swamp
341
SC0038962
Woods
Bay
Olanta
Hope
Swamp
53
110
301
Br
Swamp
Douglas
378
Turbeville
Horse
Burnt
SC0025755
Newman
Pudding
SCG730198
SCG730201
Br
Swamp
PD-203
Water Quality Monitoring Sites
NPDES Permits
Highways
Interstate
Modeled Streams
Streams
11-Digit Hydrological Units
City
Lakes
2
0
2 Miles
N

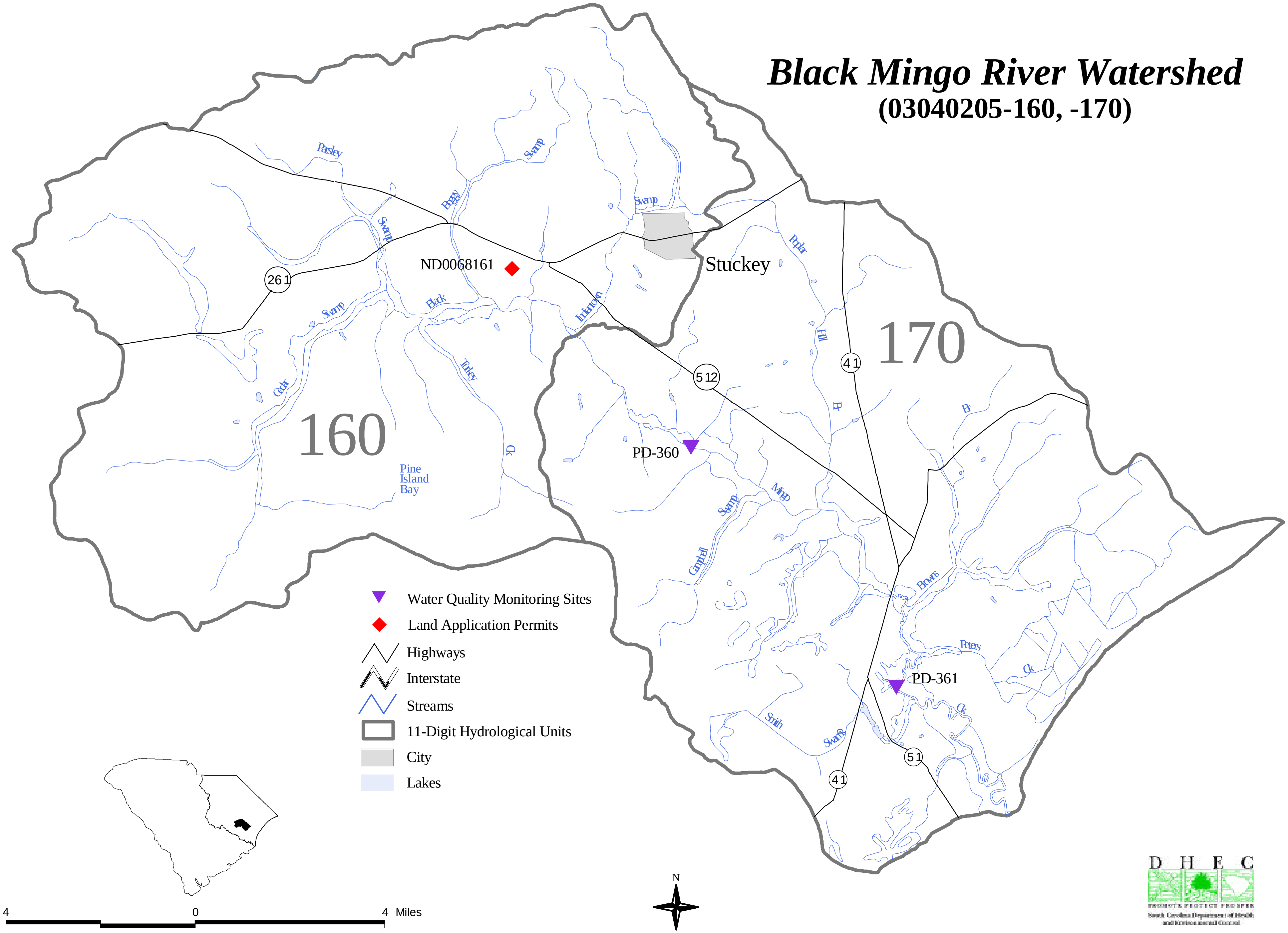
Kingstree Swamp Canal Watershed
(03040205-130)



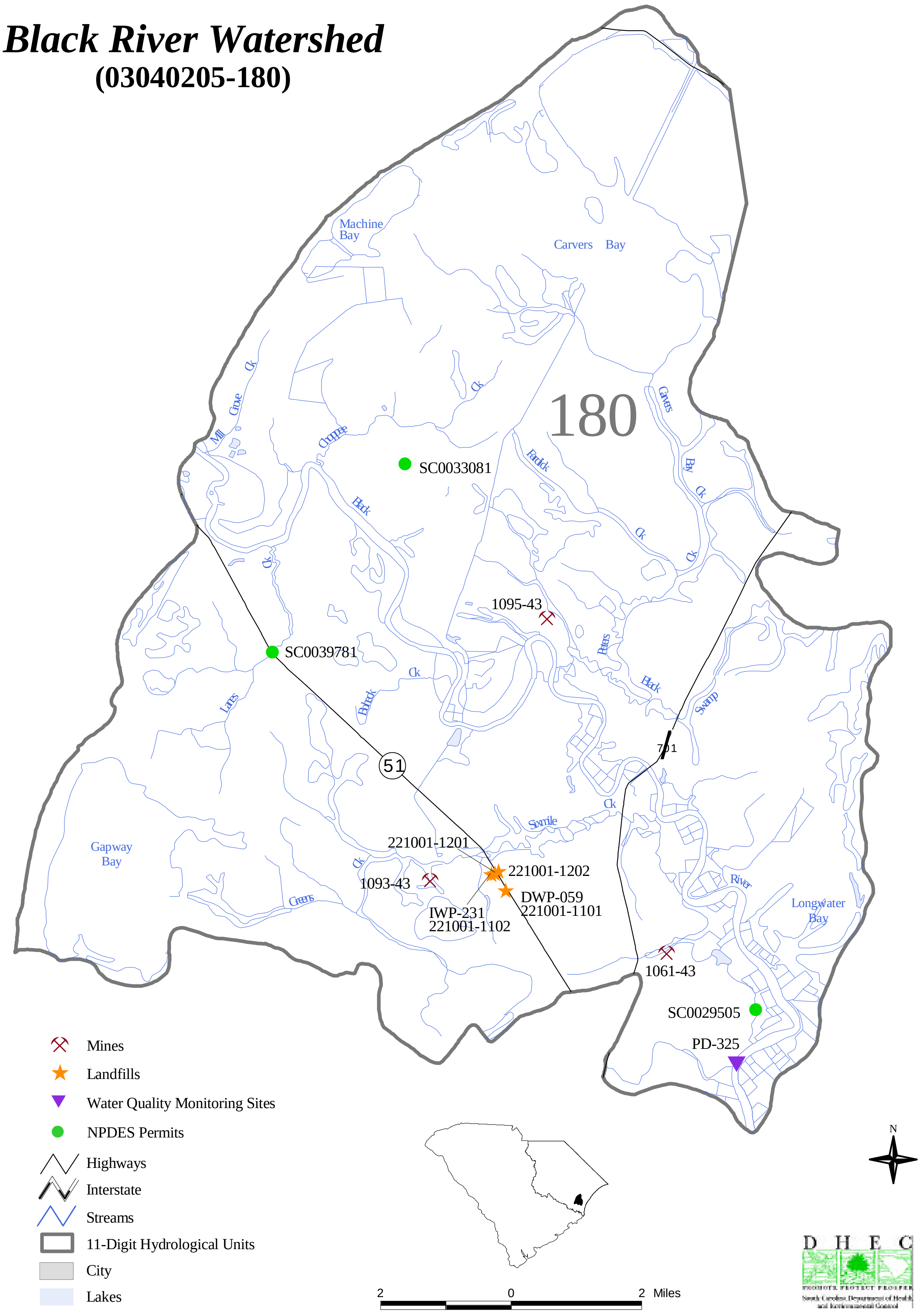
Black River Watershed
(03040205-150)



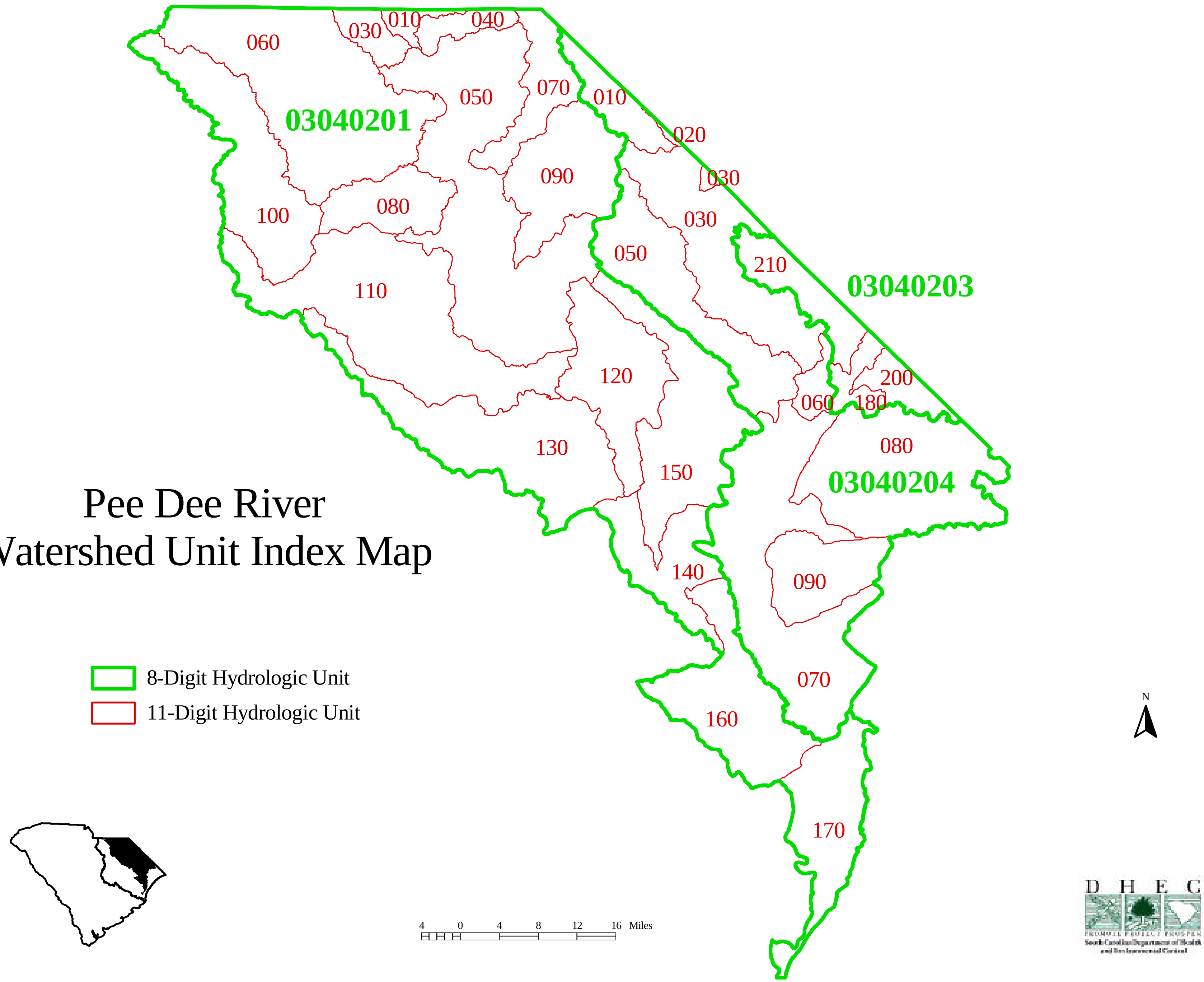
Black Mingo River Watershed
(03040205-160, -170)



Black River Watershed
(03040205-180)

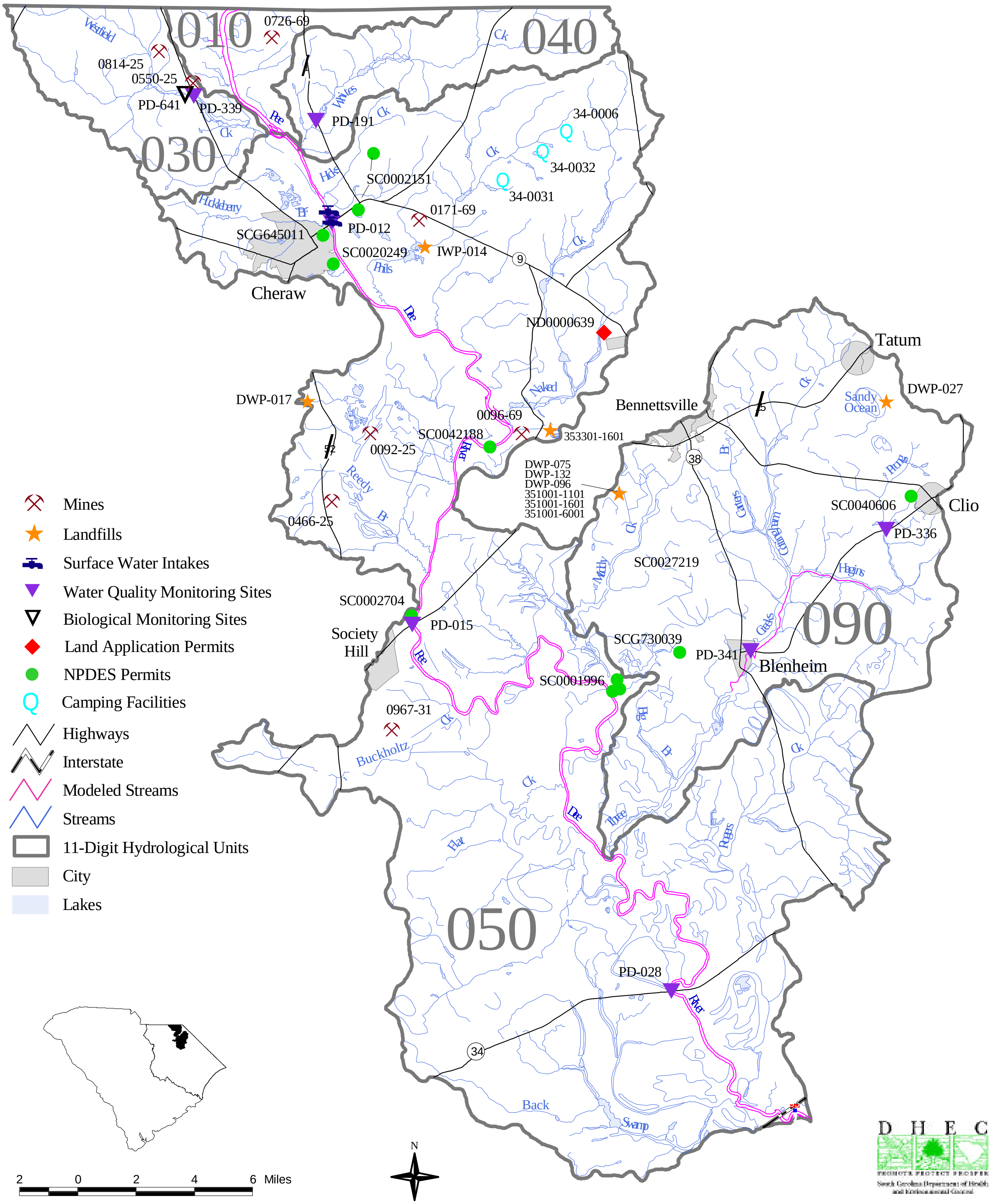


Pee Dee River Watershed Unit Index Map



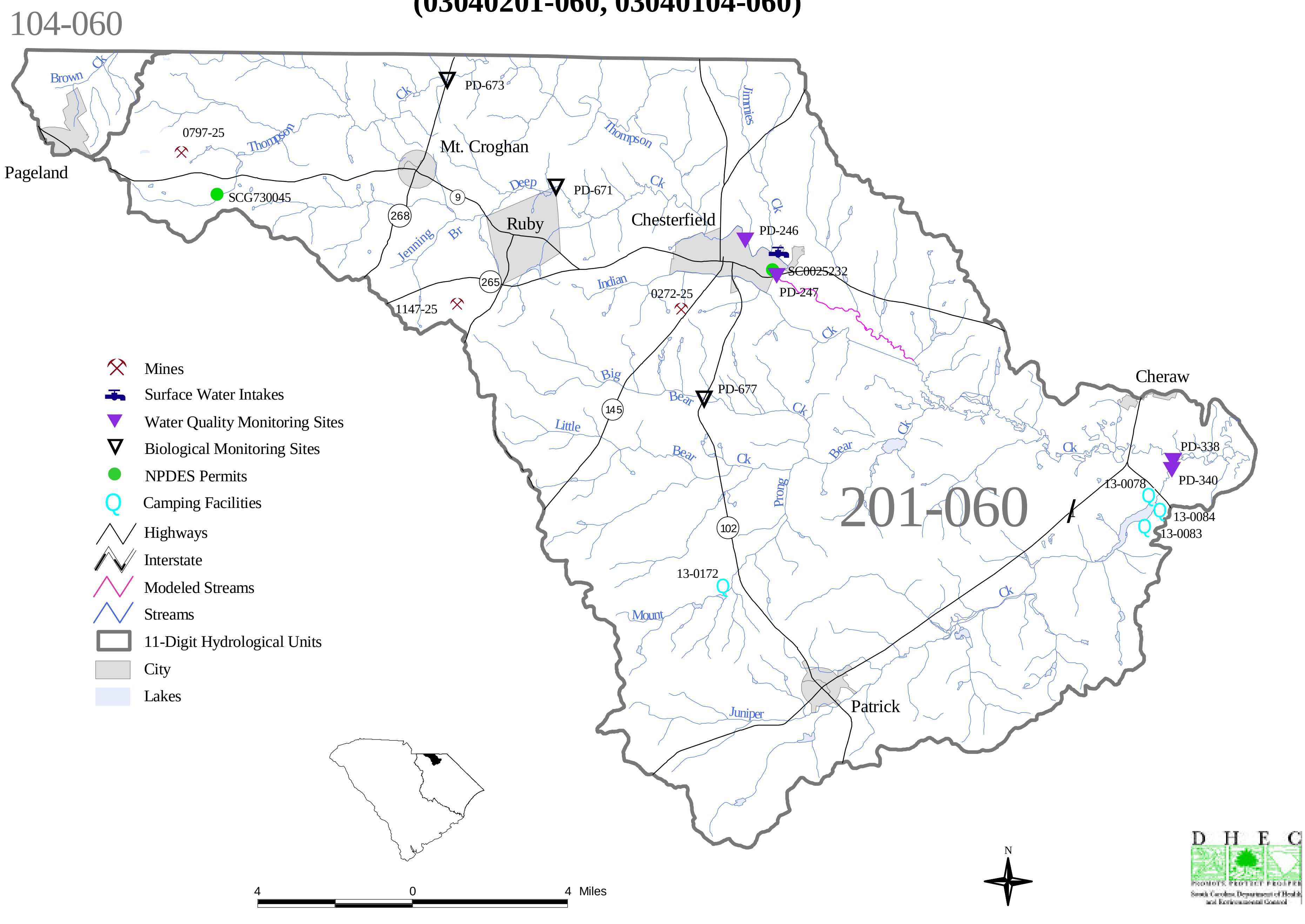
Pee Dee River , Westfield Creek, Whites Creek, and Three Creeks Watersheds

(03040201-010, -030, -040, -050, -090)

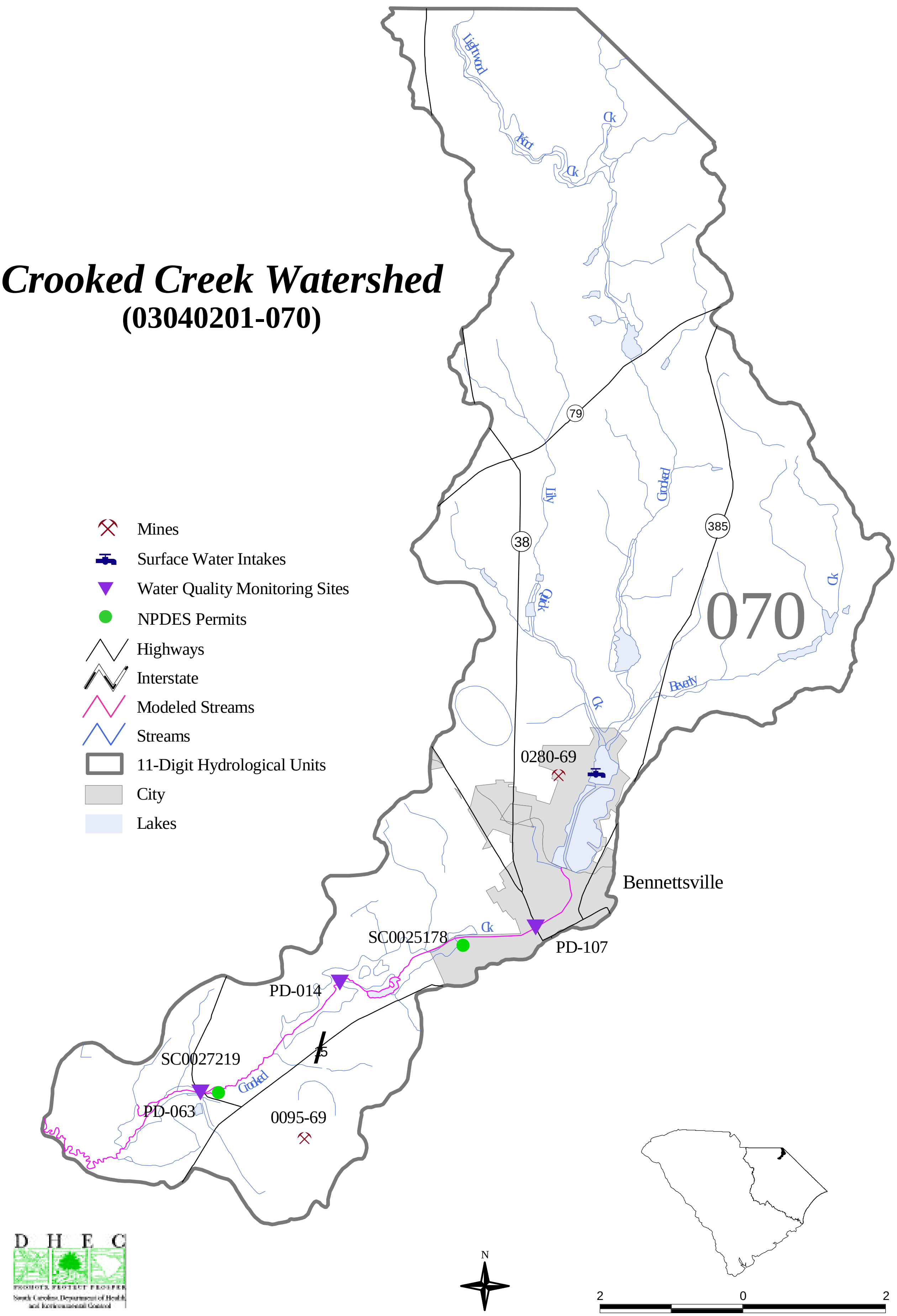


Thompson Creek Watershed

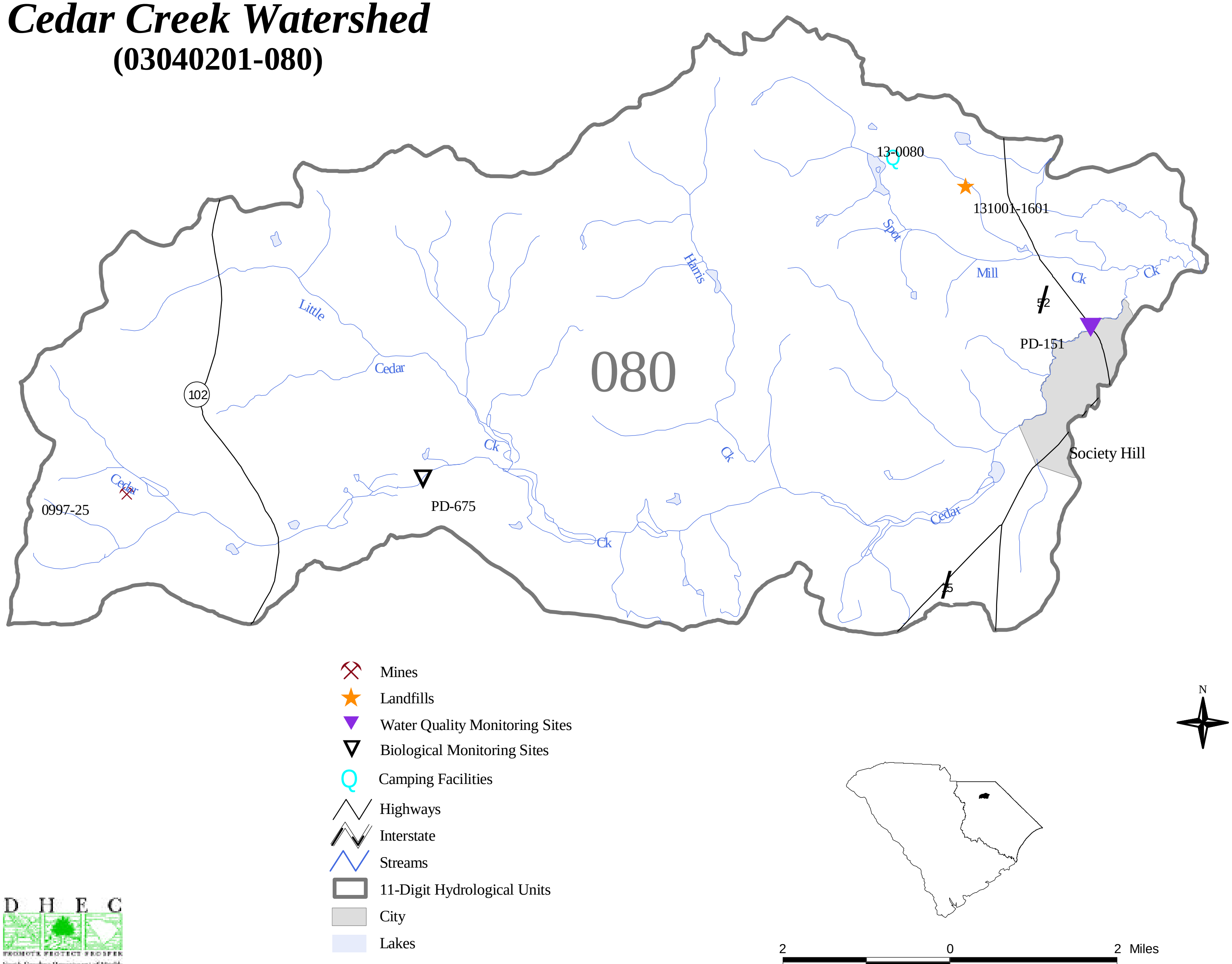
(03040201-060, 03040104-060)



Crooked Creek Watershed
(03040201-070)



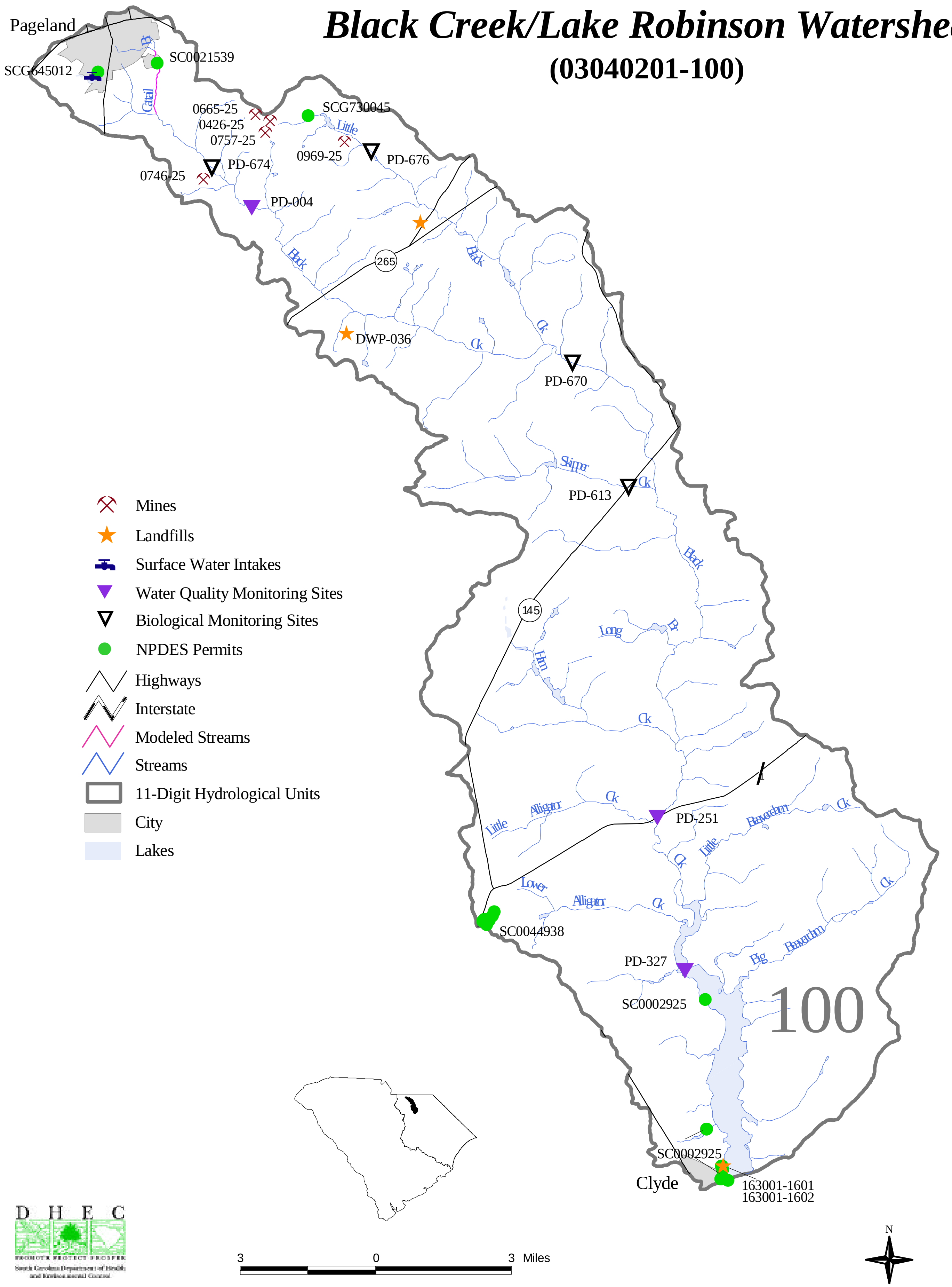
Cedar Creek Watershed
(03040201-080)

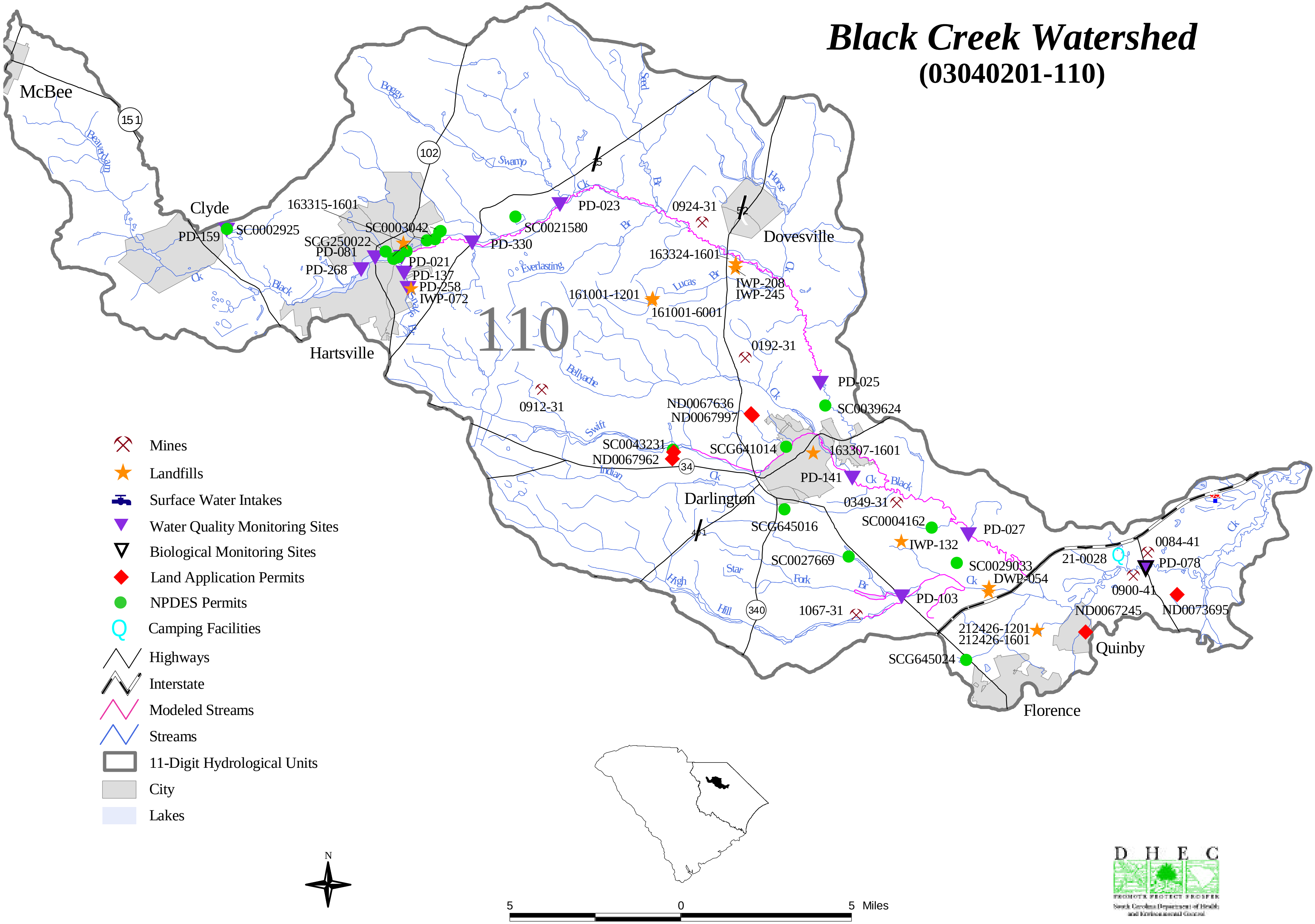


DHEC
PROMOTE PROTECT PROSPER
South Carolina Department of Health and Environmental Control

Black Creek/Lake Robinson Watershed

(03040201-100)

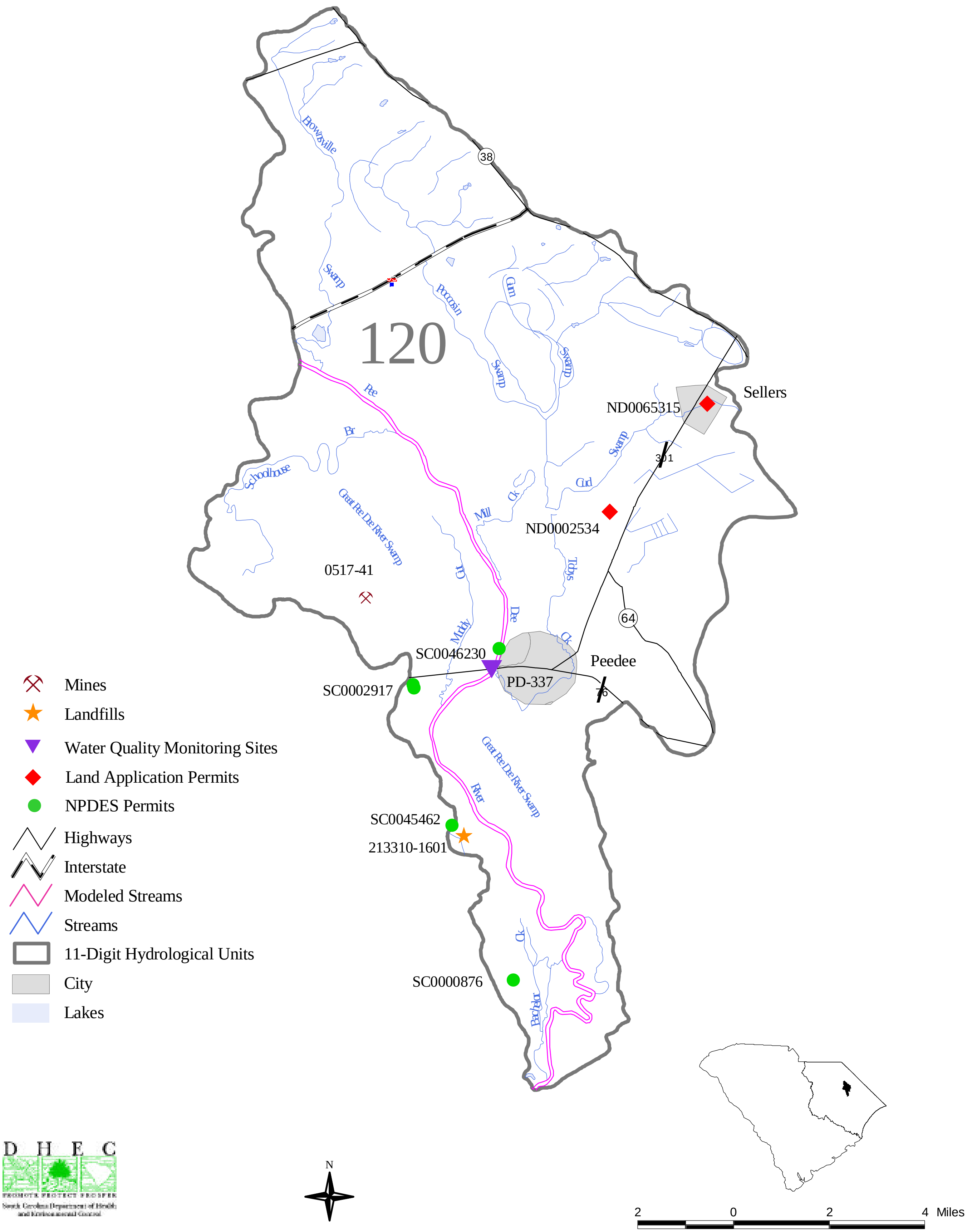




Black Creek Watershed
(03040201-110)
110
McBee
Clyde
Hartsville
Dovesville
Darlington
Quinby
Florence
151
102
15
52
34
401
340
PD-159
SC0002925
163315-1601
SC0003042
SCG250022
PD-081
PD-268
PD-021
PD-137
PD-258
IWP-072
PD-330
PD-023
SC0021580
0924-31
163324-1601
IWP-208
IWP-245
161001-1201
161001-6001
0192-31
PD-025
SC0039624
0912-31
ND0067636
ND0067997
SC0043231
ND0067962
SCG641014
163307-1601
PD-141
0349-31
SCG645016
SC0004162
PD-027
IWP-132
SC0027669
SC0029033
DWP-054
PD-103
1067-31
212426-1201
212426-1601
SCG645024
21-0028
0084-41
PD-078
0900-41
ND0067245
ND0073695
Mines
Landfills
Surface Water Intakes
Water Quality Monitoring Sites
Biological Monitoring Sites
Land Application Permits
NPDES Permits
Camping Facilities
Highways
Interstate
Modeled Streams
Streams
11-Digit Hydrological Units
City
Lakes
N
5
0
5 Miles
D H E C

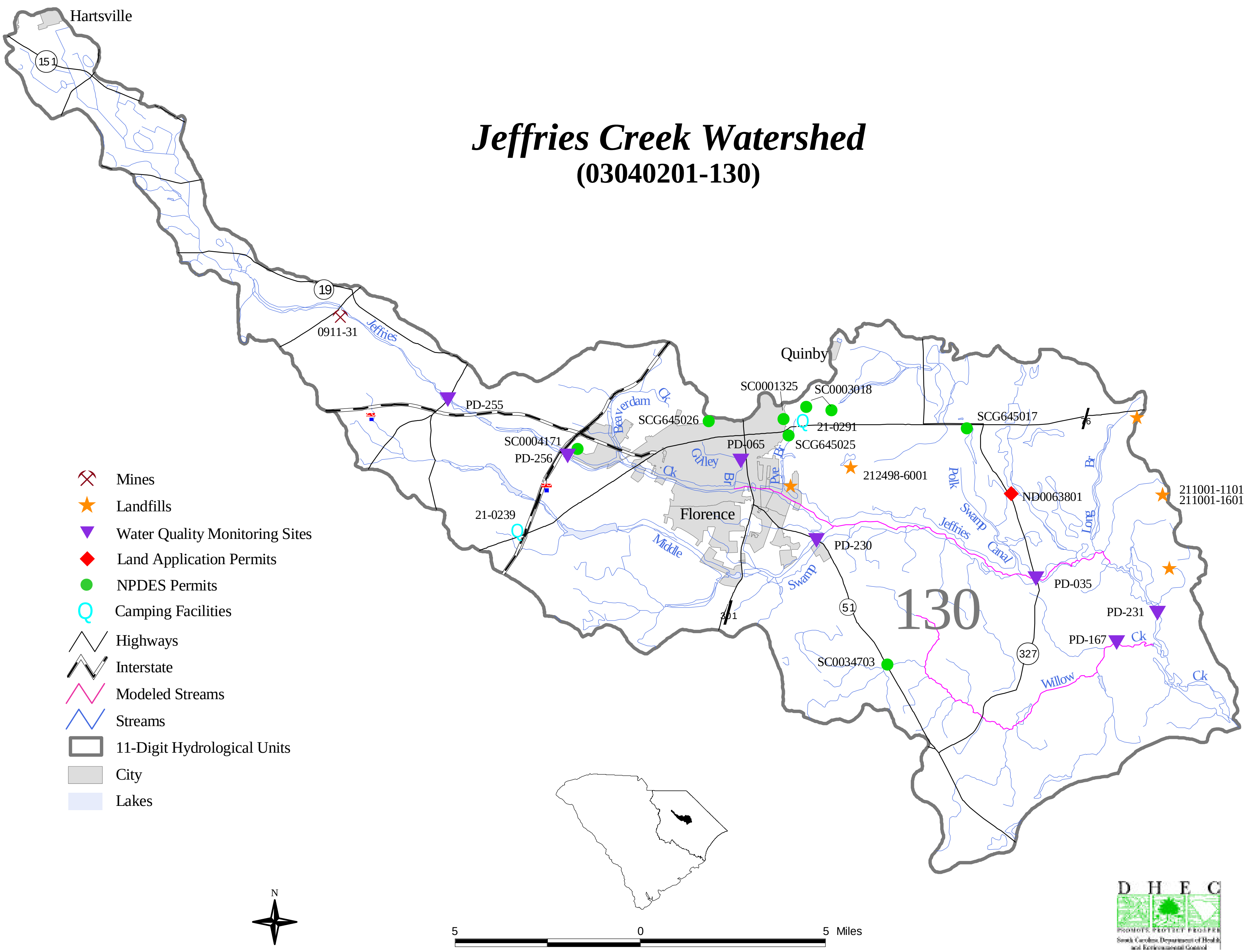
Pee Dee River Watershed

(03040201-120)

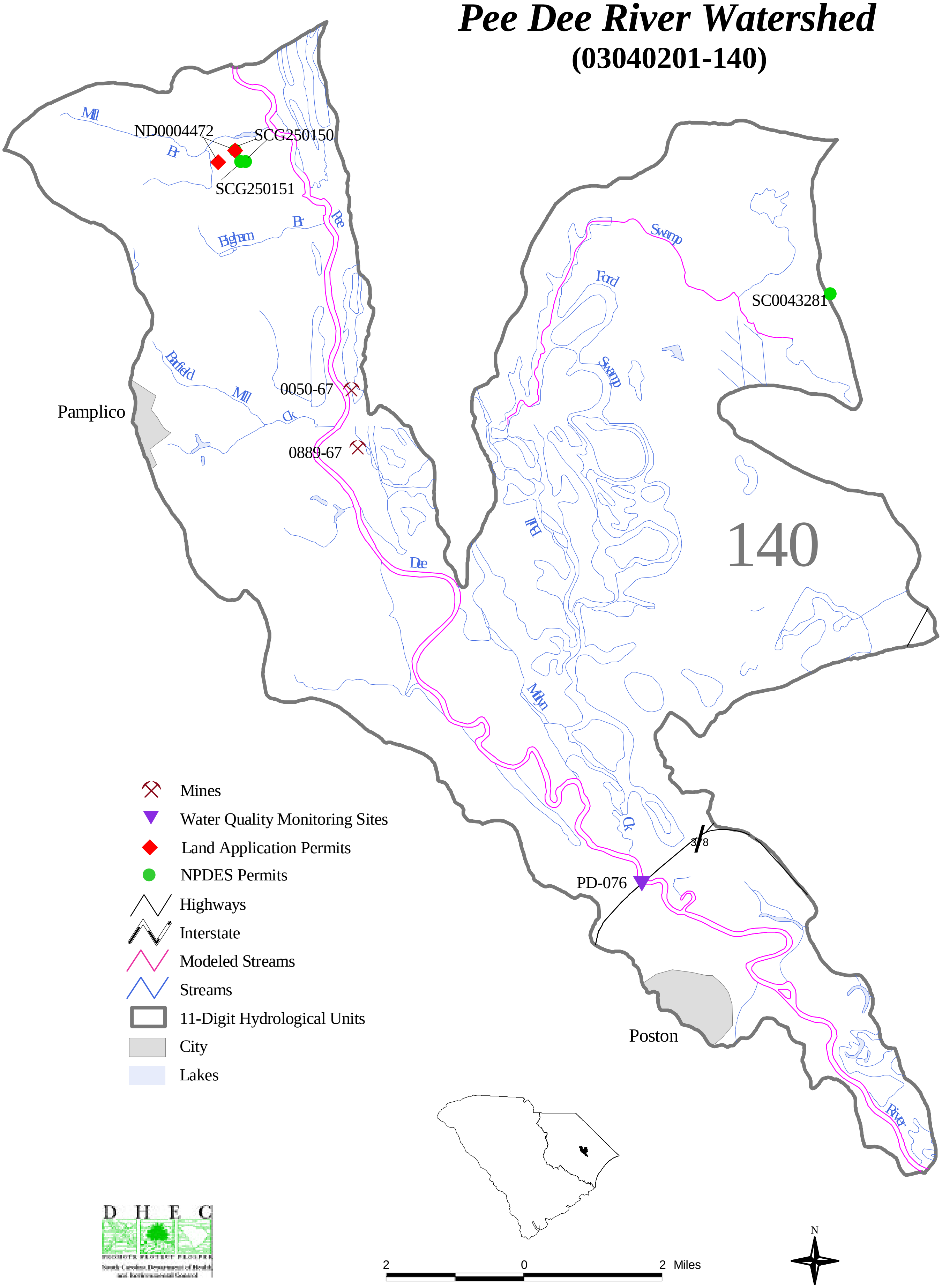


Jeffries Creek Watershed

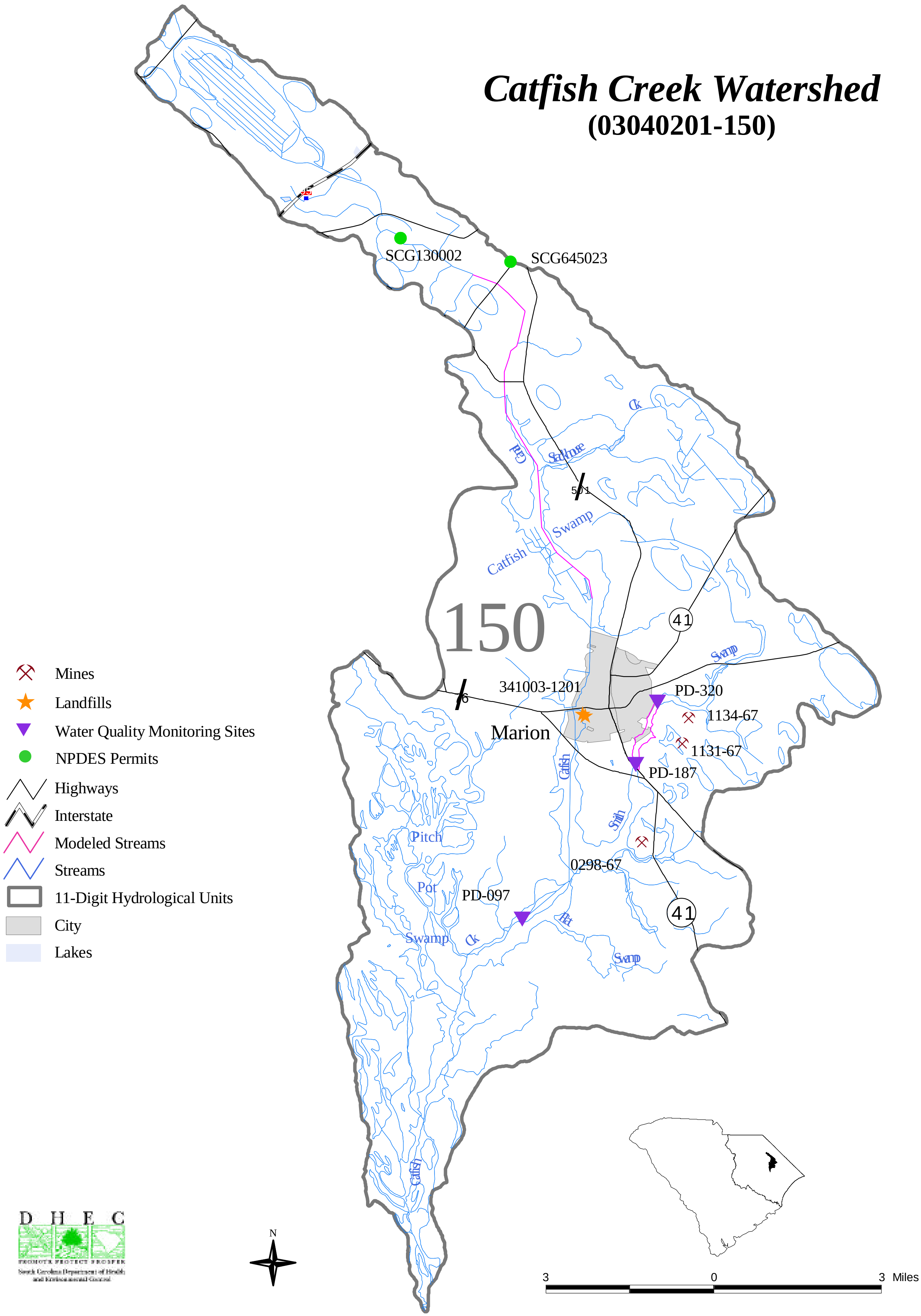
(03040201-130)



Pee Dee River Watershed
(03040201-140)

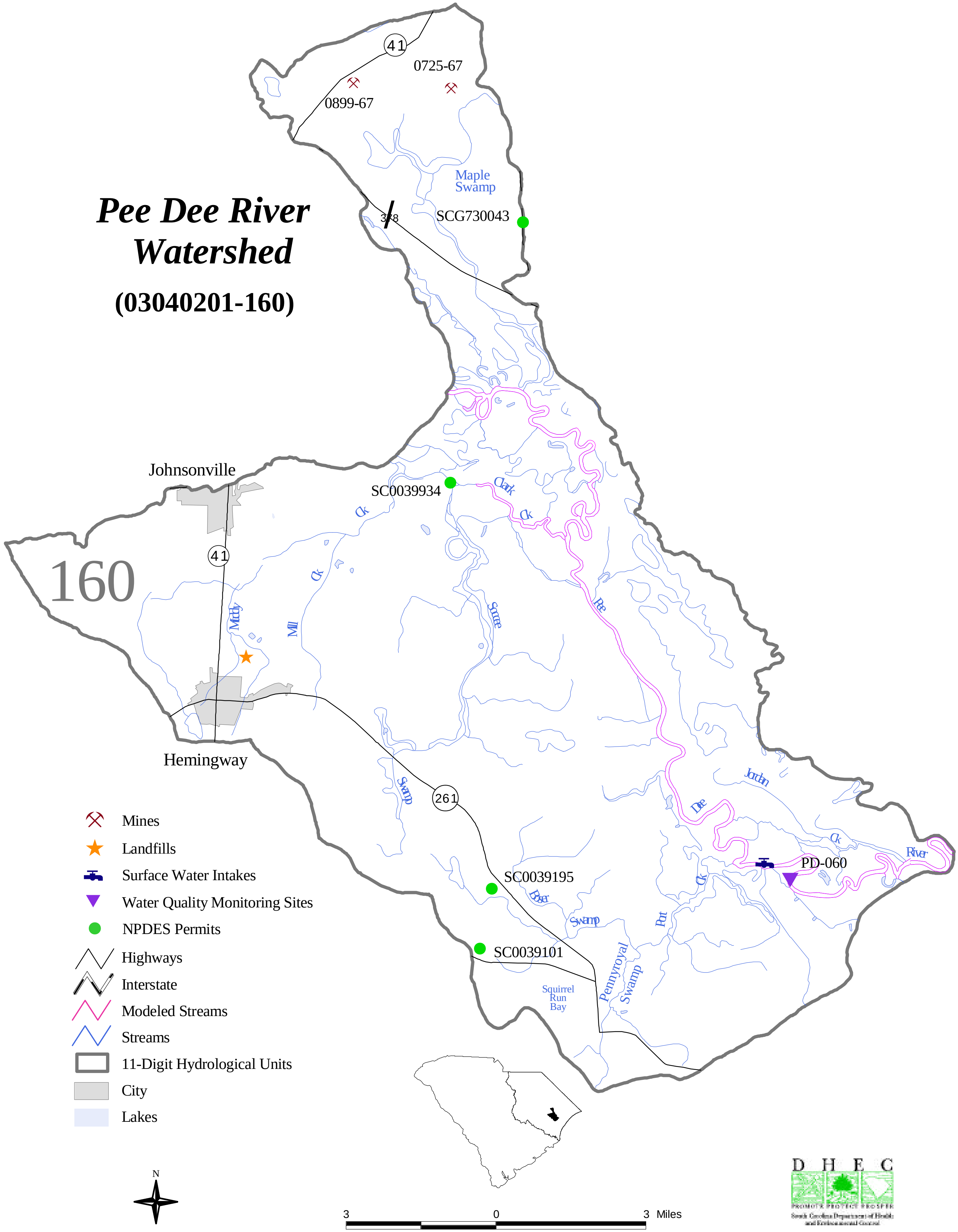


Catfish Creek Watershed
(03040201-150)

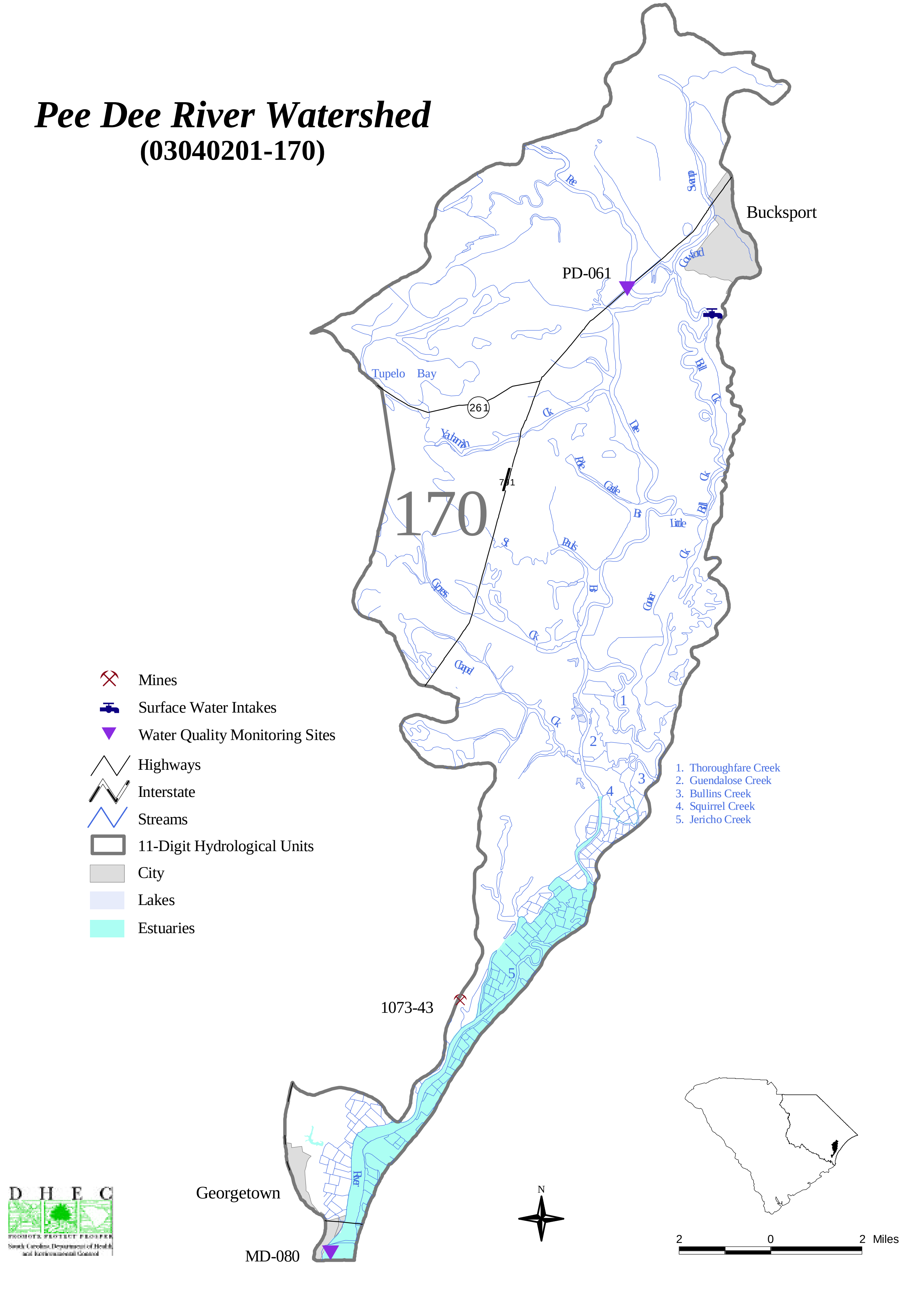


Pee Dee River Watershed

(03040201-160)

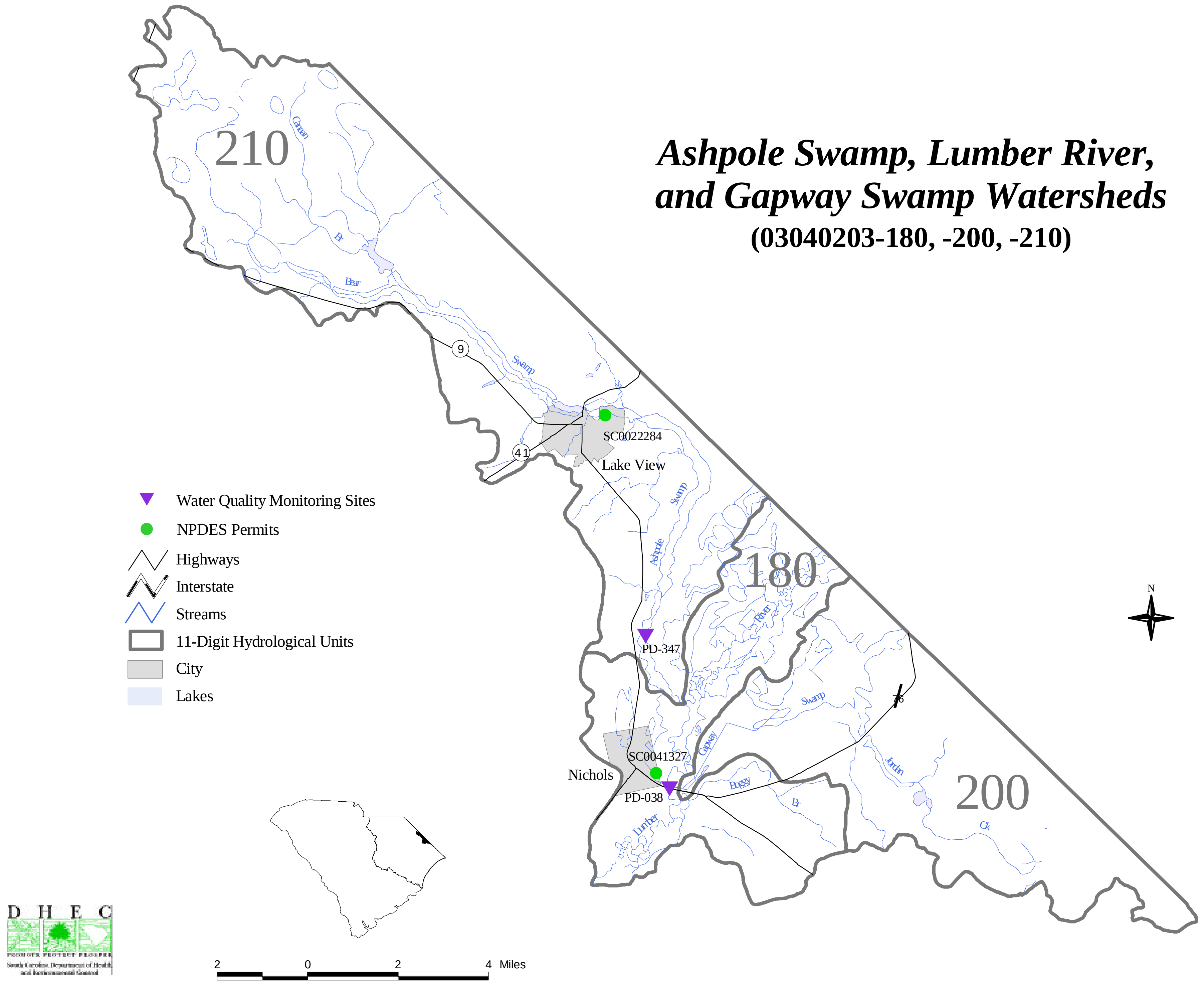


Pee Dee River Watershed
(03040201-170)

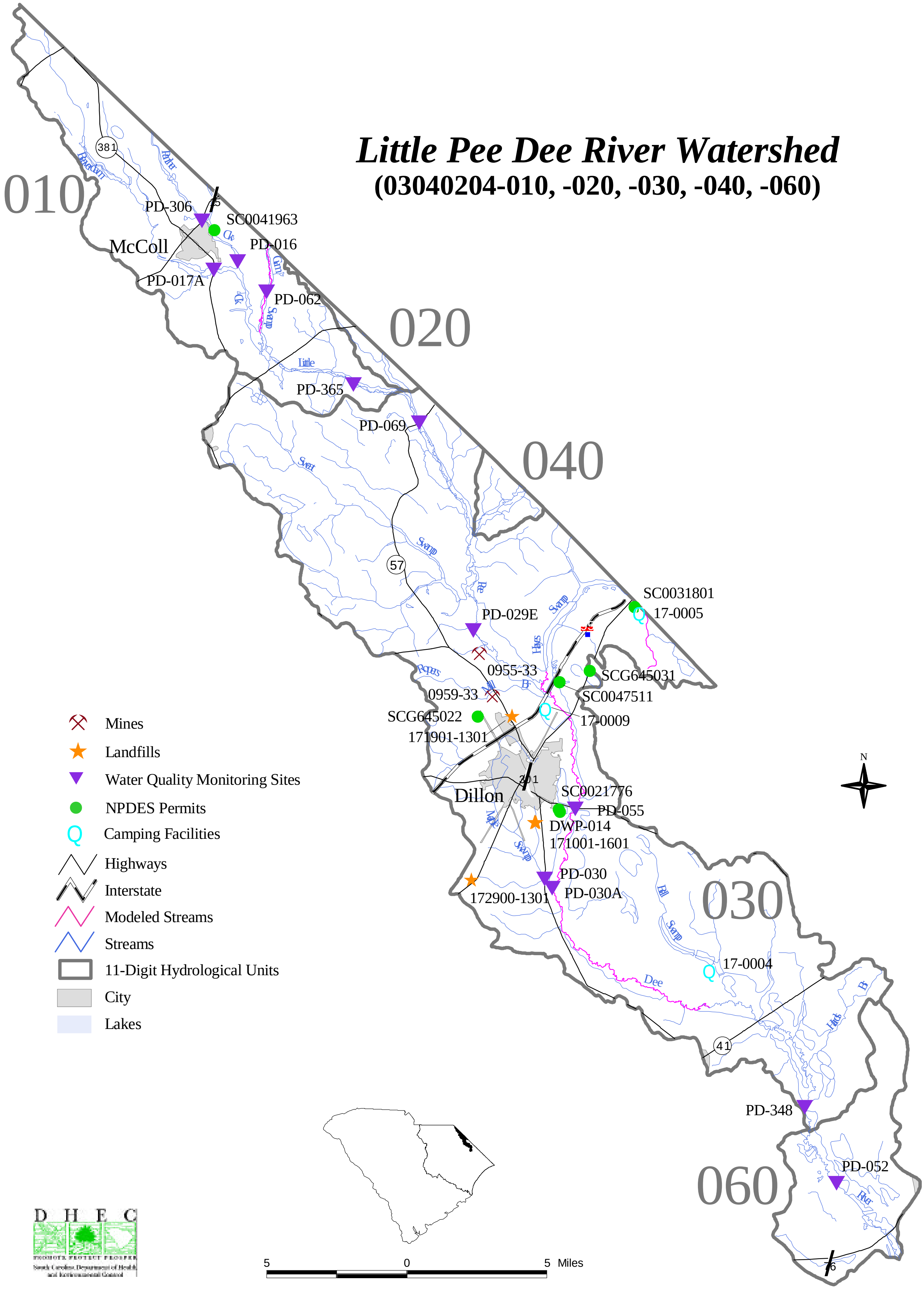


Ashpole Swamp, Lumber River, and Gapway Swamp Watersheds

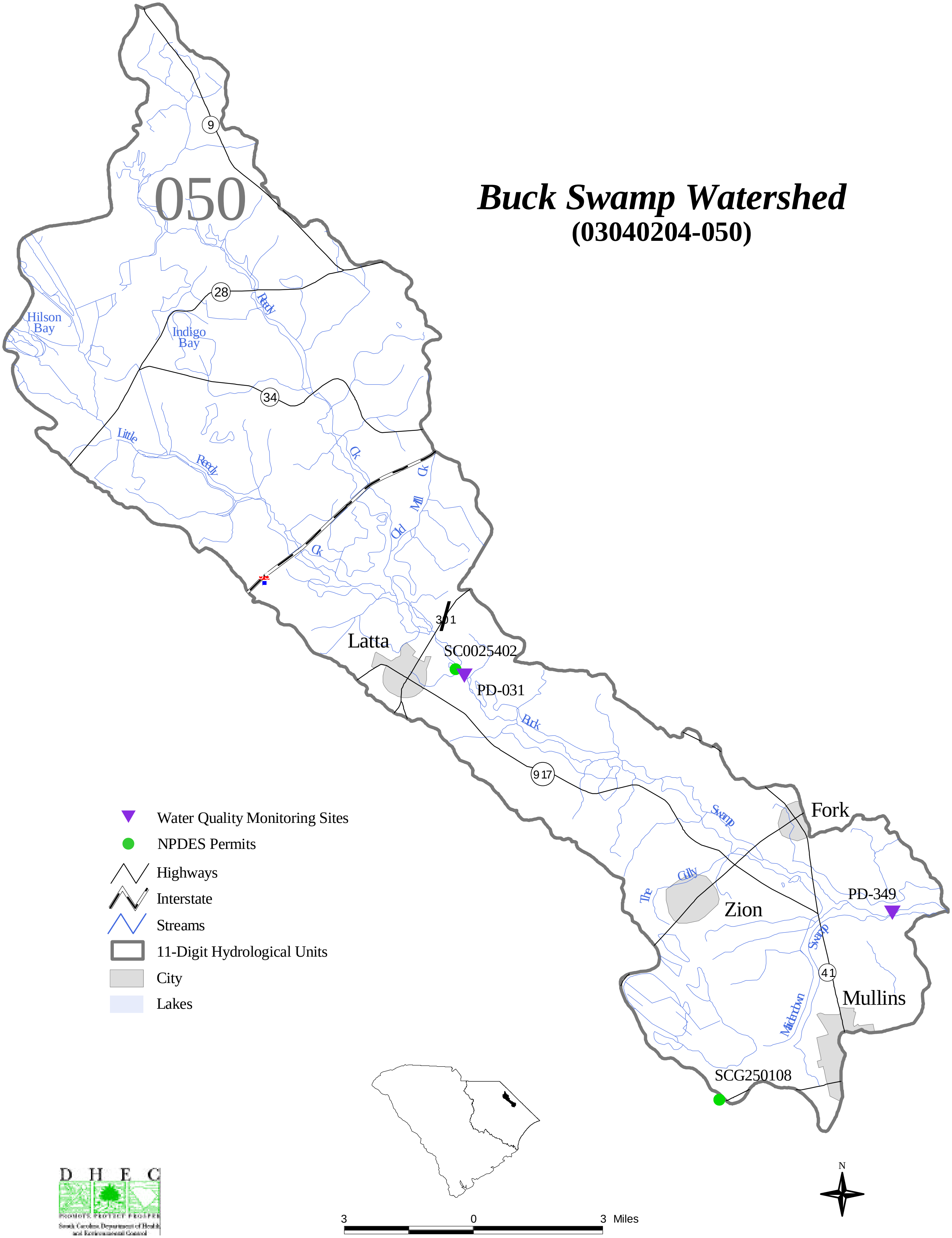
(03040203-180, -200, -210)



Little Pee Dee River Watershed
(03040204-010, -020, -030, -040, -060)

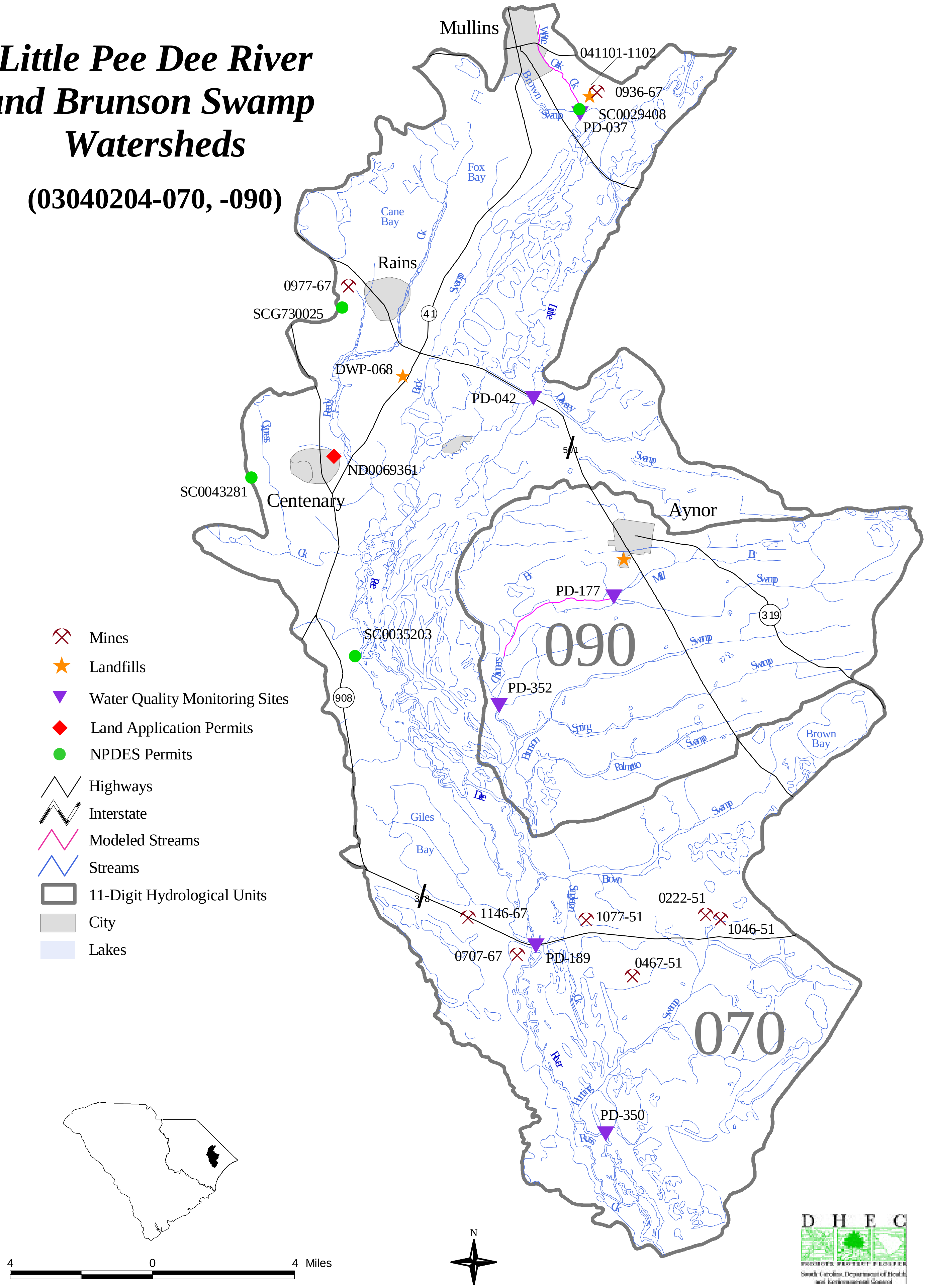


Buck Swamp Watershed
(03040204-050)

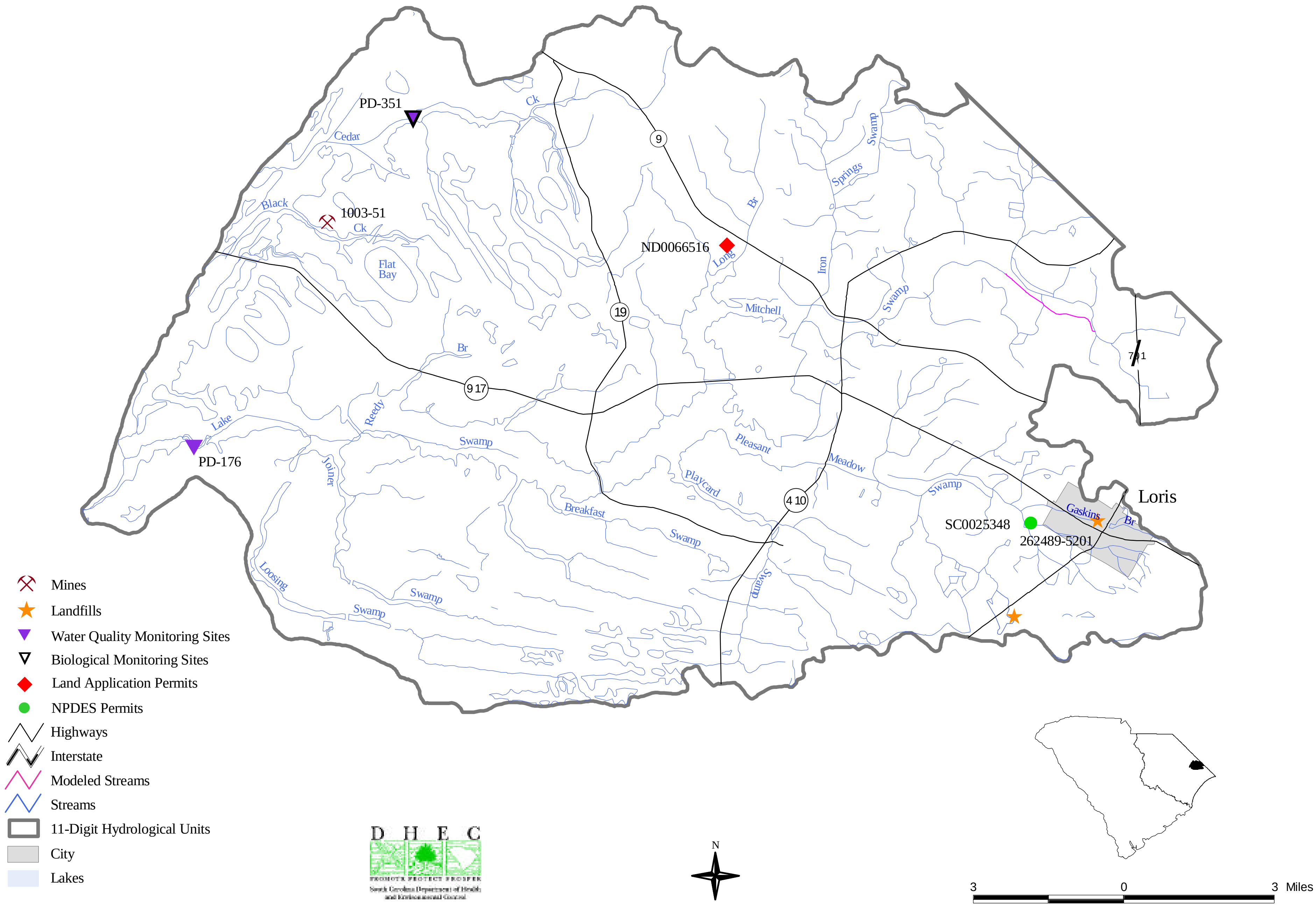


Little Pee Dee River and Brunson Swamp Watersheds

(03040204-070, -090)

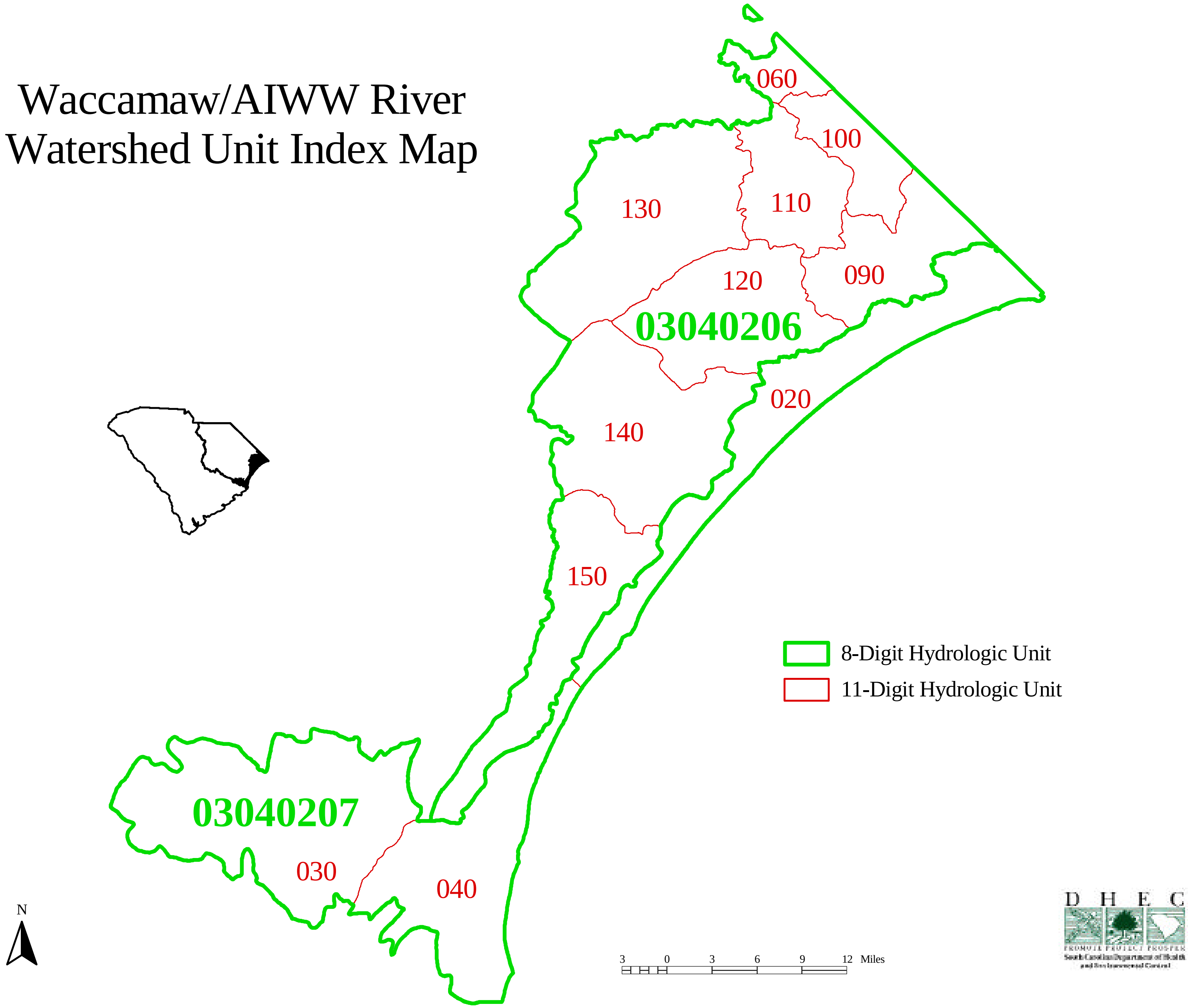


Lake Swamp Watershed
(03040204-080)



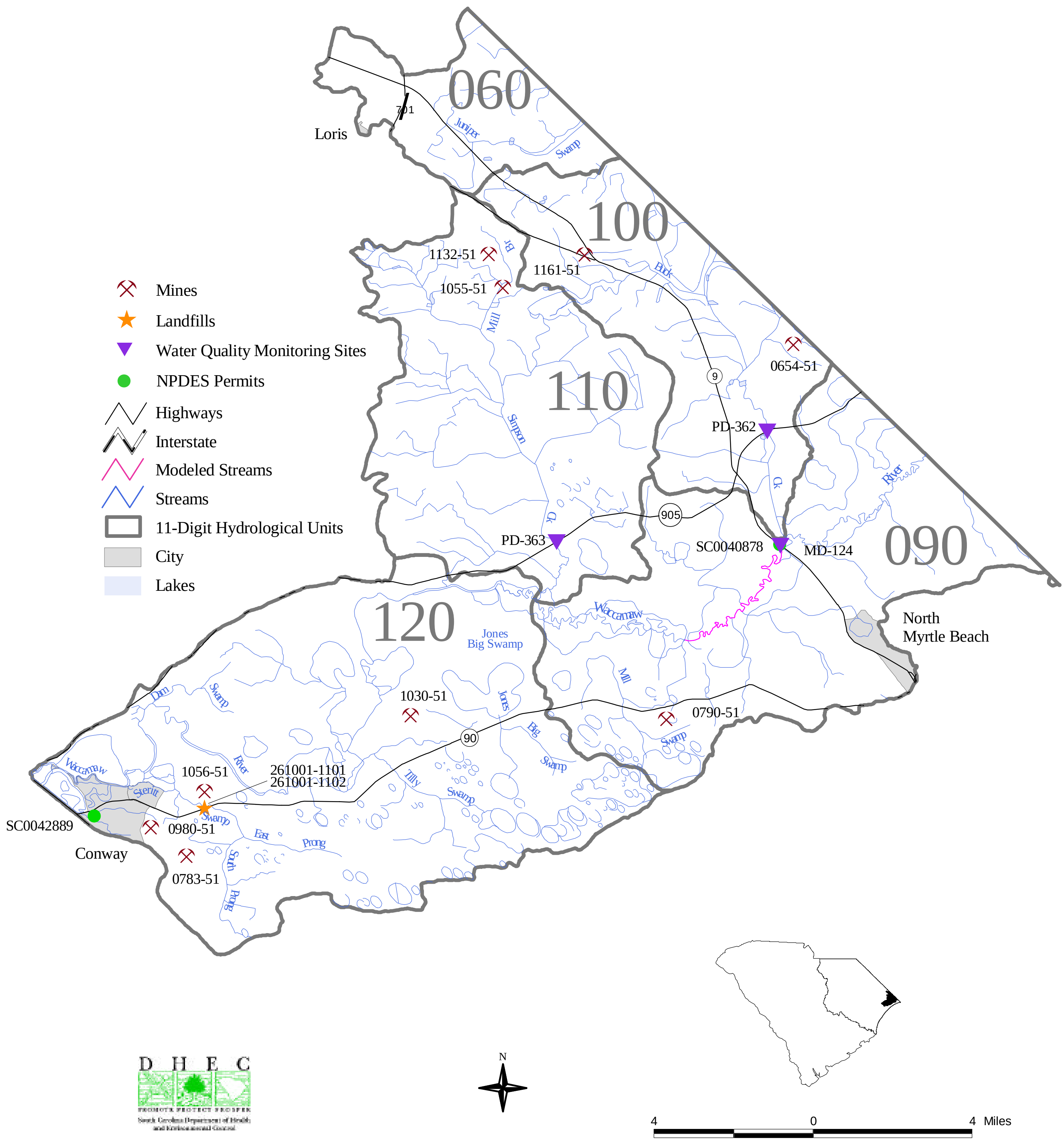
D H E C

Waccamaw/AIWW River Watershed Unit Index Map

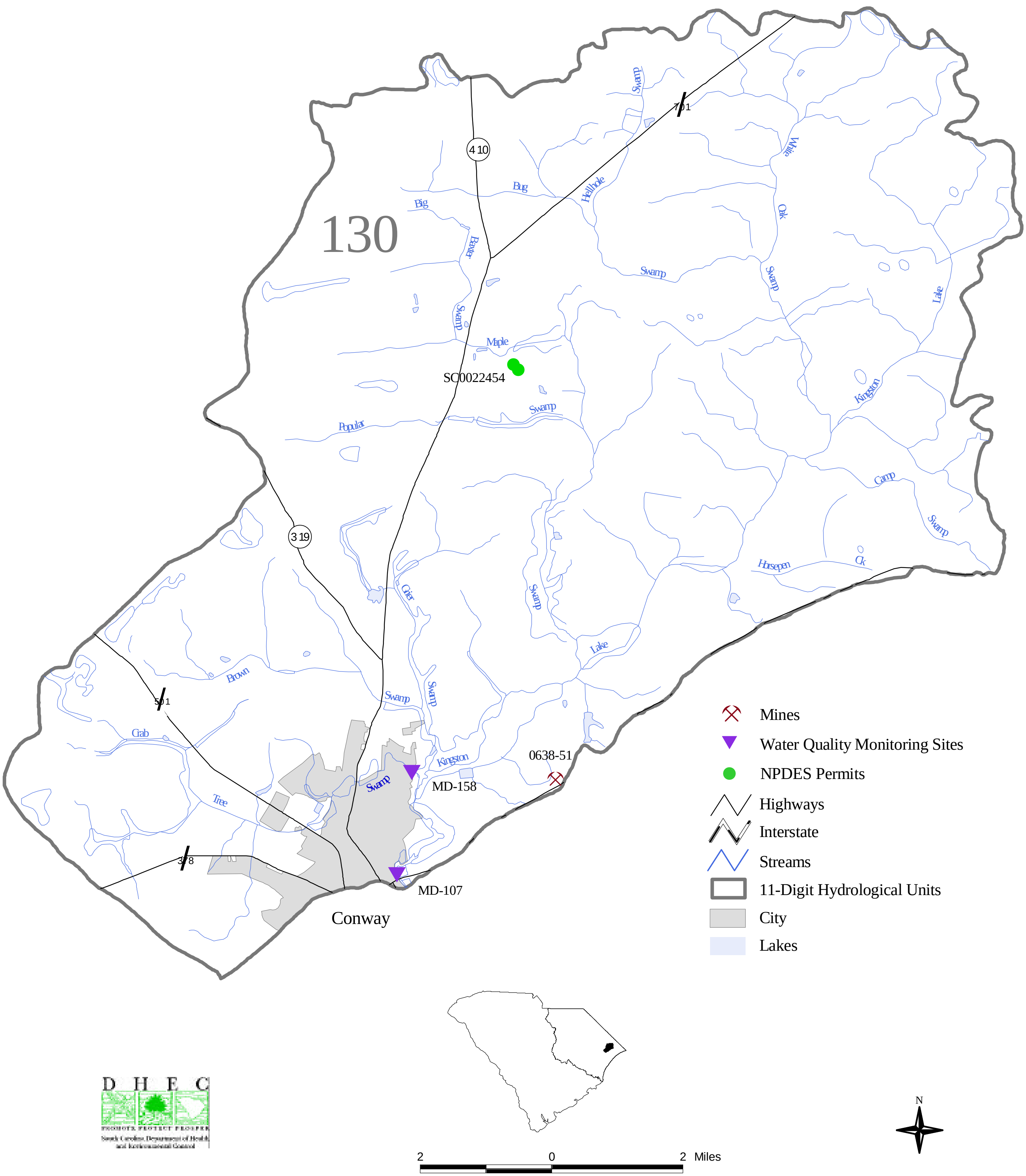


Juniper Swamp, Buck Creek, Simpson Creek and the Waccamaw River Watersheds

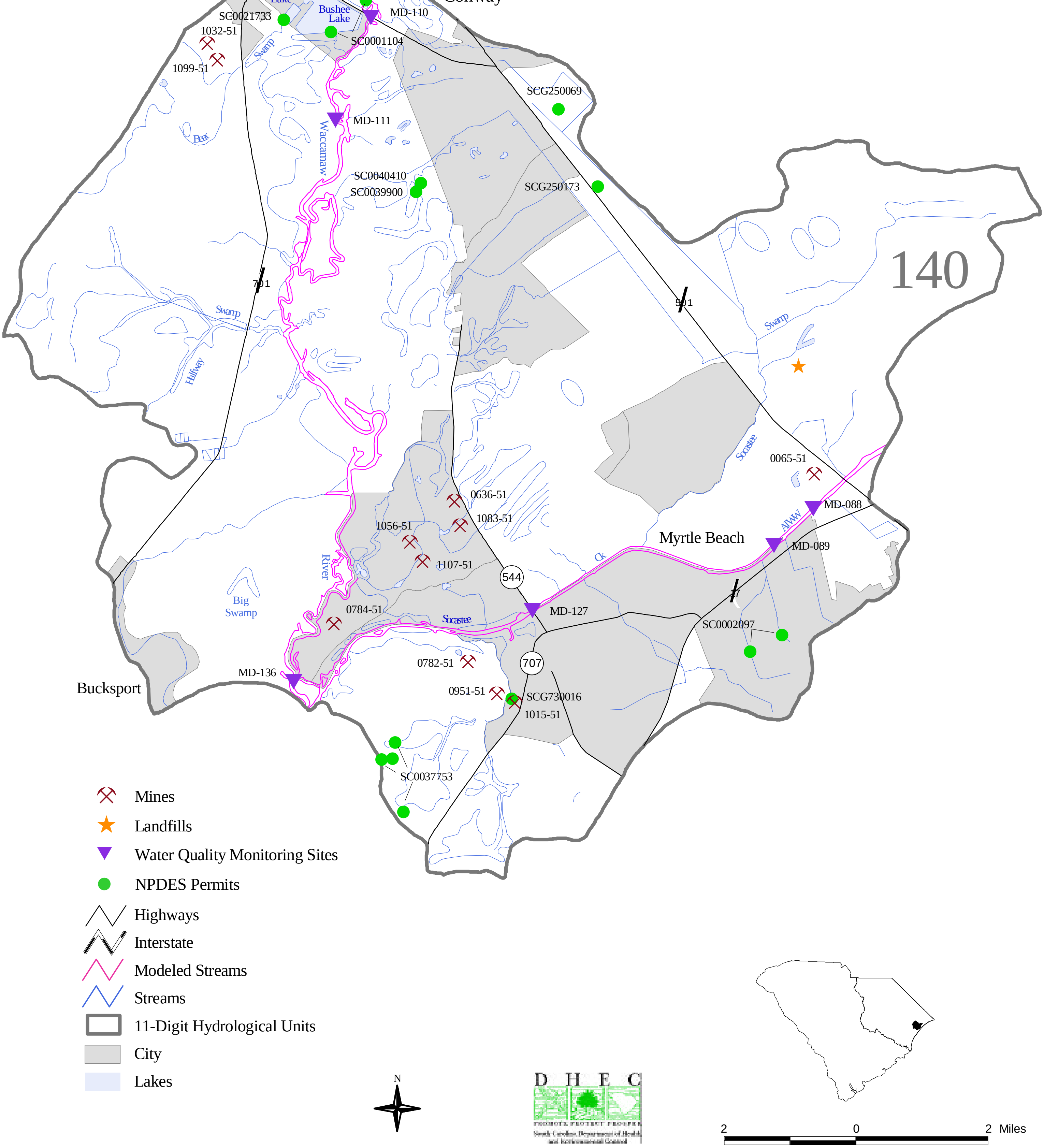
(03040206-060, -090, -100, -110, -120)



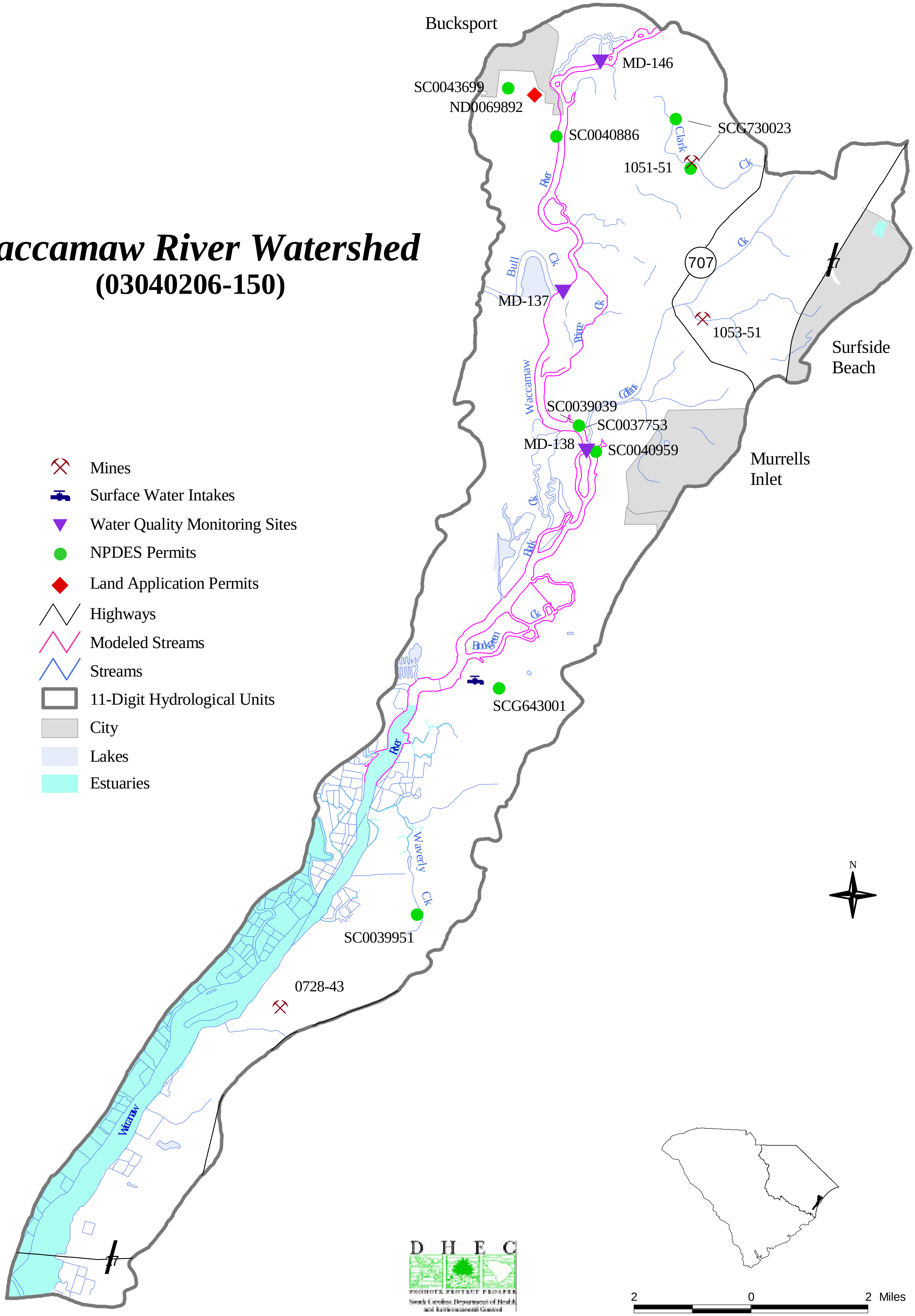
Kingston Lake Watershed
(03040206-130)



Waccamaw River Watershed
(03040206-140)

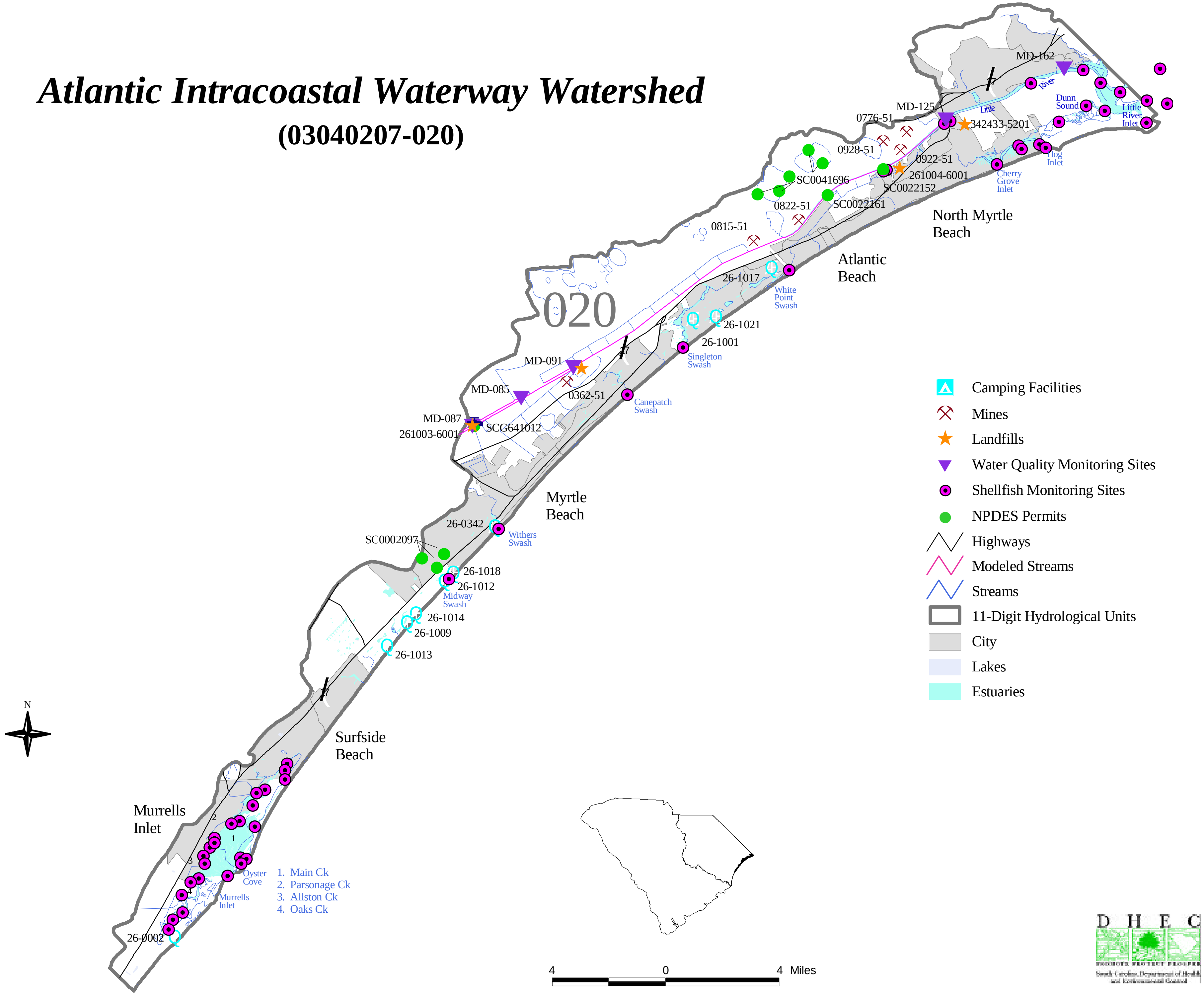


Waccamaw River Watershed
(03040206-150)

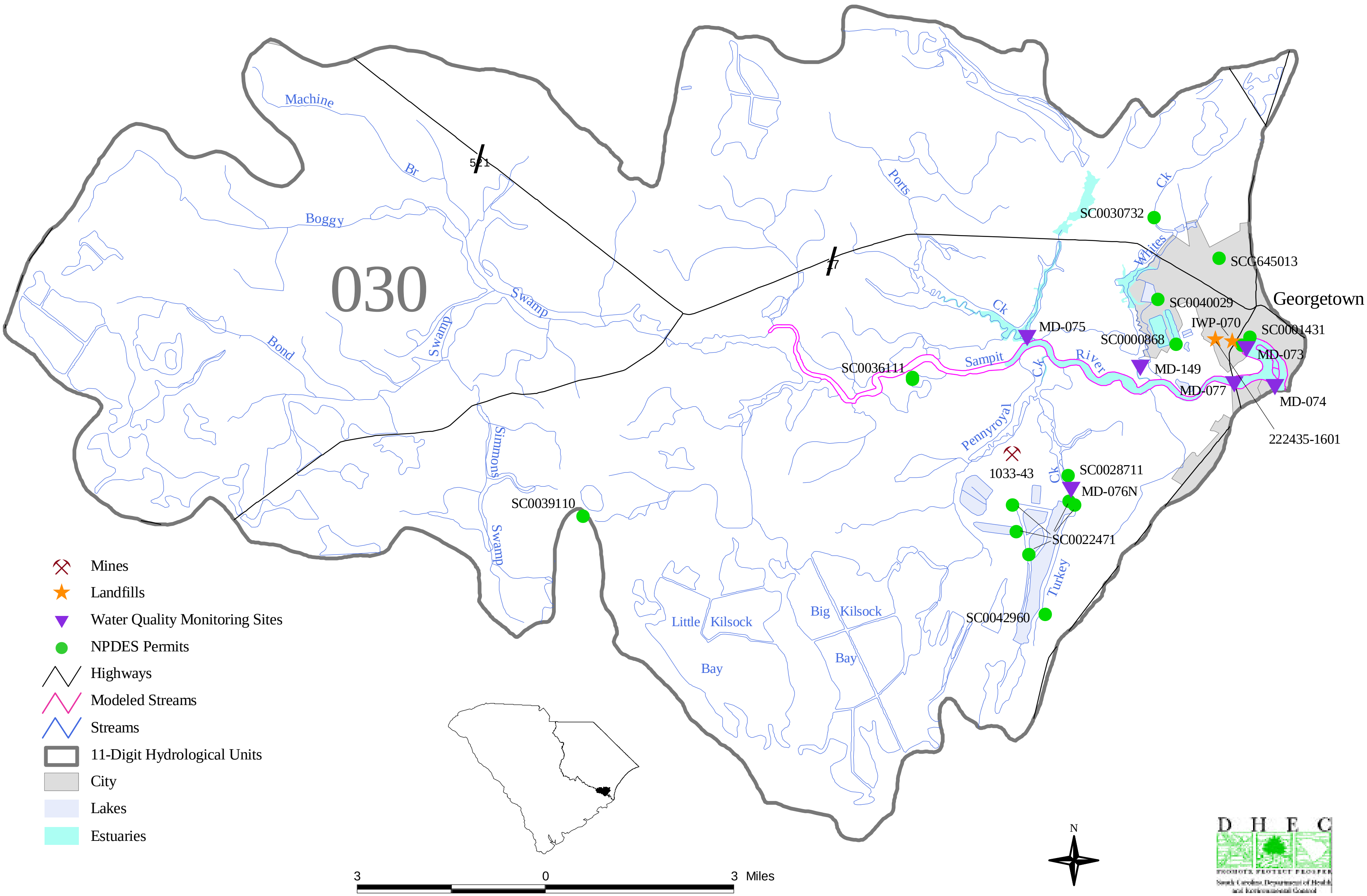


Atlantic Intracoastal Waterway Watershed

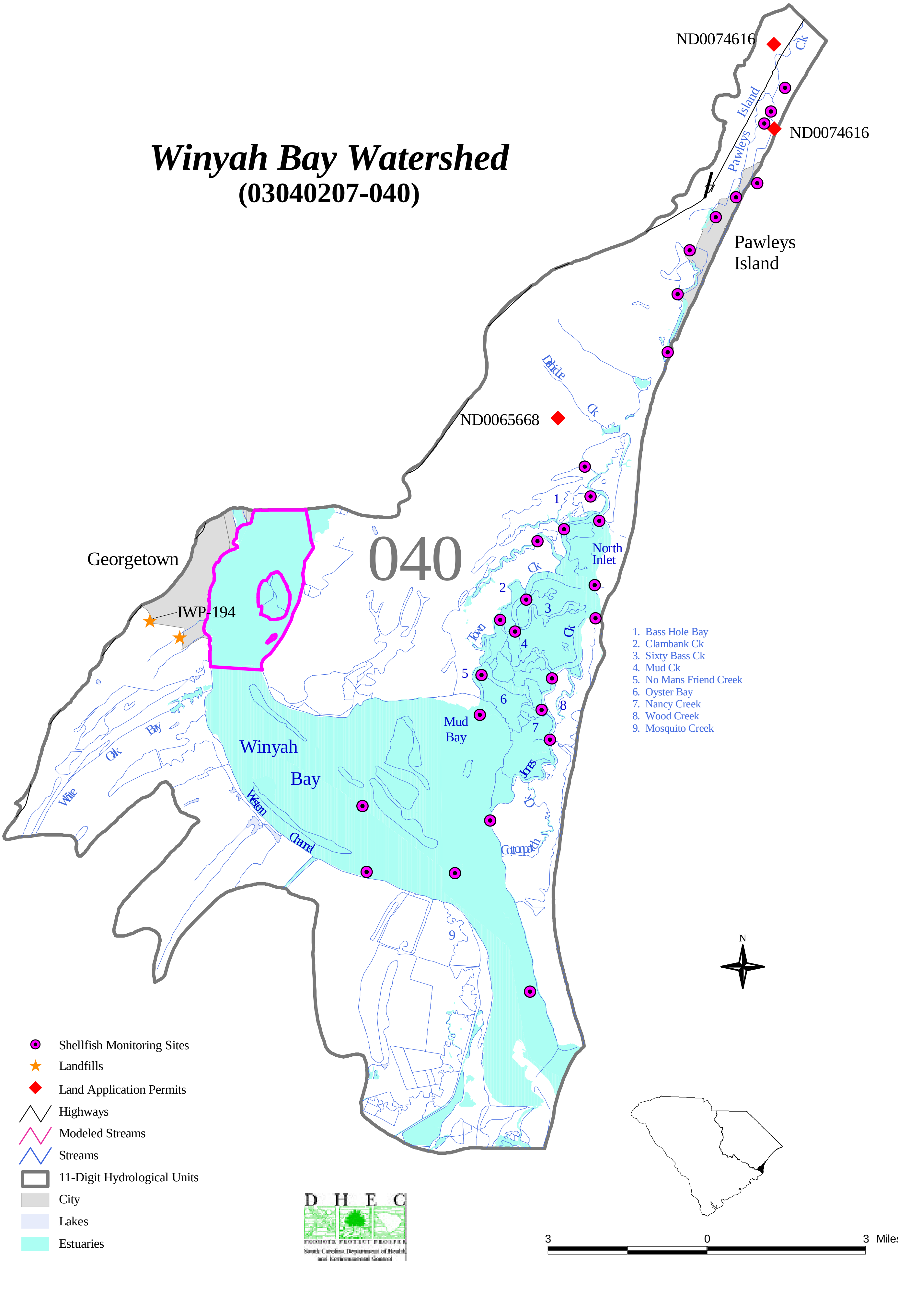
(03040207-020)



Sampit River Watershed
(03040207-030)



Winyah Bay Watershed
(03040207-040)



Waterbody Index

Facility Index